NetworkWorld

THE NEWSWEEKLY OF ENTERPRISE NETWORK COMPUTING

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R498B

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1 What is the principal business activity at your location? (check one only)

01. ☐ Manufacturing (other)
02. ☐ Finance/Banking
03. ☐ Insurance/Real Estate/Legal
04. ☐ Health Care Services
05. ☐ Hospitality/Entertainment/Recreation
06. ☐ Media/TV/Cable/Radio/Print
07. ☐ Retail/Wholesale Trade/Business Services
08. ☐ Transportation
09. ☐ Utilities
10. ☐ Education
11. ☐ Process Industries (Mining/Construction/ Petroleum Refining/Agriculture/Forestry)
12. ☐ Government (Federal/State/Local)
13. ☐ Military
14. ☐ Aerospace
15. ☐ Consulting (Independent)*
16. ☐ Carriers/Interconnects
17. ☐ Internet Service Provider (ISP)
18. ☐ Manufacturing (Computer/Communications/OEM)
19. ☐ Resellers of Computer/Network Products (VARs, VADs)
20. ☐ Systems/Network Integrators*
21. ☐ Distributors (Computer/Communications)*
22. ☐ Other (please specify)_____

***Please complete form based on largest client.**

2 What is your job function? (check one only)

NETWORK IS MANAGEMENT:

1. ☐ Network Management
2. ☐ LAN Management
3. ☐ Datacom/Telecom Management
4. ☐ IS, IT, MIS, CIO, Systems Management
5. ☐ Internet/Intranet Management/Webmaster
6. ☐ Engineering Management
7. ☐ Corporate Management (CEO, Pres., VP, Dir., Mgr., Financial Management)
8. ☐ Consultant (Independent)
9. ☐ Other (please specify)_____

3 What is the estimated value of Network equipment and services that you specify, recommend or approve the purchase of? (Please print the appropriate number code in the box next to each product category. Please complete ALL categories A-M.)

1. $50 Million or more
2. $25 Million to $49.9 Million
3. $10 to $24.9 Million
4. $1 to $9.9 Million
5. $100,000 to $999,999
6. $50,000 to $99,999
7. Under $50,000
8. None of the above

A ☐ Large Systems (Mainframes/Minis)
B ☐ Desktops(Micros/Laptops/Workstations)
C ☐ Servers
D ☐ LANs
E ☐ WAN Equipment
F ☐ Carrier Services
G ☐ Internetworking
H ☐ Internet
I ☐ Intranet
J ☐ Remote Access
K ☐ Peripherals
L ☐ Software
M ☐ Service/Support

4 What is the total number of sites for which you have purchase influence? (check one only)

1. ☐ 100+ 2. ☐ 50 - 99 3. ☐ 20 - 49 4. ☐ 10 - 19 5. ☐ 2 - 9 6. ☐ 1 7. ☐ None

5 What is the total number of Servers/Clients/LANs installed/planned at your location/in your entire organization? (Check one box in each column)

SERVERS		CLIENTS		LANS	
At Location A	Entire Org. B	At Location C	Entire Org. D	At Location E	Entire Org. F
1. 50,000+		1. 50,000+		1. 50,000+	
2. 10,000 to 49,999		2. 10,000 to 49,999		2. 10,000 to 49,999	
3. 1,000 to 9,999		3. 1,000 to 9,999		3. 1,000 to 9,999	
4. 100 to 999		4. 100 to 999		4. 100 to 999	
5. 50 to 99		5. 50 to 99		5. 50 to 99	
6. 10 to 49		6. 10 to 49		6. 10 to 49	
7. 1 to 9		7. 1 to 9		7. 1 to 9	
8. none		8. none		8. none	

6 What is your scope and involvement in purchasing decisions for network products and services for your enterprise?

A. Scope (check one only)
1. ☐ Corporate/Enterprise
2. ☐ Department
3. ☐ None

B. Involvement (check ALL that apply)
1. ☐ Create Network Strategy
2. ☐ Recommend/Specify
3. ☐ Approve
4. ☐ Evaluate
5. ☐ Determine the need
6. ☐ None

7 What is the estimated number of employees at your location/in entire organization? (check one in each section)

A. At your location:
1. ☐ Over 20,000
2. ☐ 10,000 - 19,999
3. ☐ 5,000 - 9,999
4. ☐ 2,500 - 4,999
5. ☐ 1,000 - 2,499
6. ☐ 500 - 999
7. ☐ 499 or less

B. Entire organization:
1. ☐ Over 20,000
2. ☐ 10,000 - 19,999
3. ☐ 5,000 - 9,999
4. ☐ 2,500 - 4,999
5. ☐ 1,000 - 2,499
6. ☐ 500 - 999
7. ☐ 499 or less

8 Please indicate the products/services that you are currently involved in purchasing or plan to purchase: (Check ALL that apply)

	A. Currently involved in purchasing	B. Plan to purchase
INTERNET/INTRANET		
01. Internet Services	☐	☐
02. Firewalls/Security/Encryption	☐	☐
03. Internet Web Servers	☐	☐
04. Intranet Web Servers	☐	☐
05. TCP/IP Software	☐	☐
06. Management/Monitoring Software	☐	☐
07. Push Technology	☐	☐
08. Web Browsers	☐	☐
09. Intranet Applications/Groupware	☐	☐
10. Search/Retrieval Products (web crawler)	☐	☐
11. Internet Development Tools (JAVA, ActiveX, etc.)	☐	☐
12. Electronic Commerce Tools	☐	☐
13. Internet Telephony	☐	☐
LOCAL-AREA NETWORKS		
14. Local-Area Networks	☐	☐
15 Network Operating System Software	☐	☐
16. Servers	☐	☐
17. Print Servers	☐	☐
18. ATM Switches	☐	☐
19. Token-Ring Switches	☐	☐
20. Ethernet Switches	☐	☐
21. Fast Ethernet	☐	☐
22. Gigabit Ethernet	☐	☐
23. IP Switches	☐	☐
24. LAN Storage/Backup	☐	☐
25. Optical LAN Storage/Backup	☐	☐
26. Disk LAN Storage/Backup	☐	☐
27. Tape LAN Storage/Backup	☐	☐
28. RAID LAN Storage/Backup	☐	☐
29. Network Test/Diagnostic Tools	☐	☐
30. Cables, Connectors, Baluns	☐	☐
31. UPS	☐	☐
32. Network Interface Cards	☐	☐
33. SNMP Network Management	☐	☐
INTERNETWORKING		
34. Routers	☐	☐
35. Hubs	☐	☐
36. Intelligent Hubs	☐	☐
37. Stackable Hubs	☐	☐
38. Bridge/Router	☐	☐
39. Bridges	☐	☐
40. Gateways	☐	☐
41. Concentrators/Repeaters	☐	☐
COMPUTERS/PERIPHERALS		
42. Network Computers	☐	☐
43 Laptops/Notebooks/Sub-Notebooks	☐	☐
44. Micros/PCs	☐	☐
45. Minis	☐	☐
46. Mainframes	☐	☐
47. Workstations	☐	☐
48. Printers/Network Printers	☐	☐
49. CD-ROM	☐	☐
50. Fax/Modem Boards	☐	☐
51. Graphics/Multimedia/Audio/ Video Boerds	☐	☐
52. Memory/Chips/Boards/Cards	☐	☐
REMOTE/WIRELESS COMPUTING		
53. Remote Access Products	☐	☐
54. Remote Access Services	☐	☐
55. PDAs	☐	☐
56. PCMCIA Devices	☐	☐
57. Wireless Data Services	☐	☐
58. Wireless Data Equipment	☐	☐
59. Cellular Equipment & Services	☐	☐
SOFTWARE/APPLICATIONS		
60. Network Management	☐	☐
61. Systems Management	☐	☐
62. Security	☐	☐
63. Communications Software	☐	☐
64. Terminal Emulation	☐	☐
65. Operating Systems	☐	☐
66. Applications Development Tools	☐	☐
67. Database Management/RDBMS	☐	☐
68. Groupware	☐	☐
69. Workflow	☐	☐
70. EDI	☐	☐
71. E-mail	☐	☐
72. Desktop Video Conferencing	☐	☐
73. Imaging	☐	☐
74. Suites/Server Suites (Back Office, etc.)	☐	☐
75. Middleware	☐	☐
76. Document Management	☐	☐
77. Site Metering Tools	☐	☐
78. Computer Telephony Integration (CTI)	☐	☐
79. Data Warehousing	☐	☐
WIDE-AREA NETWORK EQUIPMENT & SERVICES		
80. Modems	☐	☐
81. Asynchronous Transfer Mode (ATM)	☐	☐
82. Frame Relay Equipment/Services	☐	☐
83. ISDN Equipment & Services	☐	☐
84. FT-1/T-1/T-3 Multiplexers/Services	☐	☐
85. DSL Services/Products	☐	☐
86. SONET	☐	☐
87. Inverse Multiplexers	☐	☐
88. SMDS	☐	☐
89. Diagnostic/Test Equipment	☐	☐
90. DSU/CSU	☐	☐
91. VSAT/Satellite	☐	☐
92. PBXs	☐	☐
93. Voice Mail/Response	☐	☐
94. Videoconferencing	☐	☐
95. Leased Lines	☐	☐
96. Switched Data	☐	☐
97. Virtual Networks	☐	☐
98. Outsourcing/Systems Integration Services	☐	☐
99. Education/Training Services	☐	☐
00. None of the above (1 - 99)	☐	☐

9 Please indicate the platforms that are currently installed/planned: (check ALL that apply)

	A. Currently installed	B. Planned for purchase
NETWORK PROTOCOLS		
01. TCP/IP	☐	☐
02. IPv6	☐	☐
03. SNA	☐	☐
04. DECnet	☐	☐
05. Novell IPX/SPX	☐	☐
06. APPC/APPN/LU 6.2	☐	☐
07. NETBIOS	☐	☐
08. AppleTalk	☐	☐
09. NFS	☐	☐
10. Other (please specify)_____	☐	☐
LAN ENVIRONMENT		
11. Gigabit Ethernet	☐	☐
12. Switched Ethernet	☐	☐
13. Fast Ethernet (100 Megabit Ethernet)	☐	☐
14. Ethernet	☐	☐
15. ATM	☐	☐
16. Token Ring/Token Ring Switching	☐	☐
17. IP Switching	☐	☐
18. FDDI	☐	☐
19. 100Base-T	☐	☐
20. 10Base-T	☐	☐
21. LocalTalk	☐	☐
22. Fibre Channel	☐	☐
23. 100vg Any LAN	☐	☐
24. Other (please specify)_____	☐	☐
NETWORK OPERATING SYSTEM		
25. Windows NT	☐	☐
26. Windows NT/Advanced Server	☐	☐
27. Novell IntranetWare	☐	☐
28. Novell (NetWare 4.X)	☐	☐
29. Novell (NetWare 2.X, 3.X)	☐	☐
30. Microsoft (LAN Manager)	☐	☐
31. LocalTalk (AppleTalk)	☐	☐
32. Banyan (VINES)	☐	☐
33. IBM (LAN Server)	☐	☐
34. Artisoft (LANtastic)	☐	☐
35. Other (please specify)_____	☐	☐
COMPUTER OPERATING SYSTEM		
36. NT Server	☐	☐
37. NT Workstation	☐	☐
38. Unix/Xenix/AIX	☐	☐
39. Solaris	☐	☐
40. Windows	☐	☐
41. Windows 95	☐	☐
42. Windows 97	☐	☐
43. DOS	☐	☐
44. OS/2/OS/2 Warp	☐	☐
45. IBM MVS/VM/VSE	☐	☐
46. Digital VMS	☐	☐
47. Macintosh	☐	☐
48. Other (please specify)_____	☐	☐
49. None of the above (1-48)	☐	

10 Which of the following Servers/Clients do you have installed/planned at your location? (check ALL that apply in each column)

	A. Servers	B. Clients		A. Servers	B. Clients
Power PC	☐ 01.	☐	486	☐ 07.	☐
Power Mac	☐ 02.	☐	386	☐ 08.	☐
Mac Other	☐ 03.	☐	286	☐ 09.	☐
Multiprocessor Servers	☐ 04.	☐	Risc	☐ 10.	☐
P6/PII	☐ 05.	☐	Alpha	☐ 11.	☐
Pentium/Pentium Pro	☐ 06.	☐	Other	☐ 12.	☐

11 Which of the following hardware platforms are installed/planned in your company? (check ALL that apply)

A - Mainframes (Large Scale)
1. ☐ IBM
2. ☐ Amdahl
3. ☐ Cray
4. ☐ Hitachi
5. ☐ Unisys
6. ☐ Other_____

B - Minis (Midrange)
1. ☐ IBM RS6000
2. ☐ IBM AS400
3. ☐ Digital
4. ☐ Tandem
5. ☐ Unisys
6. ☐ AT&T GIS
7. ☐ H-P
8. ☐ Data General
9. ☐ Other_____

C - Workstations
1. ☐ Sun Microsystems
2. ☐ Silicon Graphics
3. ☐ Digital
4. ☐ H-P
5. ☐ IBM
6. ☐ Other_____

12 What is the estimated gross annual revenue of your entire company/ institution? (check one only)

01. ☐ $20 billion or more
02. ☐ $10 billion to $19.9 billion
03. ☐ $1 billion to $9.9 billion
04. ☐ $500 million to $999.9 million
05. ☐ $100 million to $499.9 million
06. ☐ $50 million to $99.9 million
07. ☐ $10 million to $49.9 million
08. ☐ $5 million to $9.9 million
09. ☐ $4.9 million or less
10. ☐ None of the above

13 For which areas outside of North America do you have purchase influence? (check ALL that apply)

1. ☐ Europe 2. ☐ Asia 3. ☐ South America 4. ☐ Australia
5. ☐ Middle East 6. ☐ None

Form: 9702

NEWSPAPER

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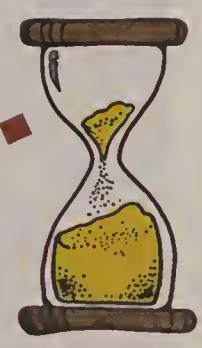

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E-1000 Low Cost Network-Ready Desktop ■ Intel® 166MHz Pentium® Processor with MMX™ Technology, 16MB SDRAM ■ 256K Pipelined Burst Cache ■ EV500 .28 Screen Pitch 15" Monitor (13.9" Viewable) ■ Integrated PCI Video with 2MB DRAM ■ 1.2GB EIDE Hard Drive ■ 3.5" Diskette Drive ■ 16-Bit Sound Blaster® Compatible Business Audio ■ Integrated 10/100 Fast Ethernet ■ E-Series Low-Profile Desktop Case ■ 104* Keyboard & Mouse ■ Microsoft® Windows® 95 ■ Desktop Management Interface (DMI) 1.1 Compliant ■ Intel LANDesk® Client Manager 3.01 **$1099** Business Lease †$40/mo.

E-3110SE Mainstream Network-Ready Desktop ■ Intel 233MHz Pentium® II Processor with MMX Technology, 32MB SDRAM ■ Integrated 512K Pipelined Burst Cache ■ EV700 .28 Screen Pitch 17" Monitor (15.9" Viewable) ■ AccelGraphics Permedia™ 2 32-Bit ACP with 8MB SGRAM ■ 3.2GB Ultra ATA Hard Drive ■ 12X CD-ROM Drive and 3.5" Diskette Drive ■ 3Com® Ethernet Adapter ■ E-Series Mid-Tower Case (shown with desktop case option) ■ 104* Keyboard and MS® IntelliMouse™ ■ MS Windows 95 ■ (DMI) 1.1 Compliant ■ Intel LANDesk Client Manager 3.01 ■ Gateway Cold℠ Service and Support for E-Series PCs* **$1999** Business Lease †$73/mo.

E-3110XL High Performance Network Ready Desktop ■ Intel 300MHz Pentium II Processor with 512K ECC Cache, 64MB SDRAM ■ EV900 .26 Screen Pitch 19" Monitor (18" Viewable) ■ AccelGraphics Permedia 2 32-Bit ACP with 8MB SGRAM ■ 6.4GB Ultra ATA Hard Drive ■ 12X CD-ROM Drive and 3.5" Diskette Drive ■ 3Com Ethernet Adapter ■ E-Series Mid-Tower Case ■ 104* Keyboard and MS IntelliMouse ■ MS Windows 95 ■ (DMI) 1.1 Compliant ■ Intel LANDesk Client Manager 3.01 ■ Gateway Cold Service and Support for E-Series PCs* **$2999** Business Lease †$110/mo.

E-5002 Standard Technical Workstation ■ Intel 300MHz Pentium II Processor (Dual-Processor Ready) ■ 128MB ECC SDRAM ■ EV900 .26 Screen Pitch 19" Monitor (18" viewable) ■ 8MB AccelGraphics Permedia 2 AGP Graphics Card ■ Seagate® 9GB 10,000 RPM Ultra Wide SCSI Hard Drive ■ 3.5" Diskette Drive ■ 12X SCSI CD-ROM Drive ■ 3Com 10/100 PCI Network Card ■ E-Series Workstation Tower Case ■ 104* Keyboard & MS IntelliMouse ■ Intel LANDesk Client Manager 3.01 ■ MS Windows NT® 4.0 **$4999** Business Lease †$183/mo. CDRS-03 **32.42**

Gateway Solo™ 2300 Portable ■ 12.1" SVGA, TFT or DSTN Color Display ■ Intel PentiumProcessors with MMX Technology up to 233MHz ■ SDRAM Expandable to 192MB ■ 256K Pipelined Burst Cache ■ 128-Bit Graphics Accelerator w/64K Colors ■ Up to 4GB Hard Drive ■ Modular 3.5" Diskette Drive ■ Modular 6X min/11X max CD-Rom Drive ■ 16-Bit Wavetable Sound & Stereo Speakers ■ NiMH & AC Pack or 12-Cell Lithium Ion Battery & AC Pack ■ 85-Key MS® Windows® 95 Keyboard ■ Carrying Case ■ NTSC/PAL Video Out ■ USB Ports & Zoomed Video ■ MS Windows 95 or MS Windows NT 4.0 ■ MS Works 95 or MS Office 97, Small Business Edition Plus Encarta® 97 ■ LapLink® *for Windows* 95 & McAfee® VirusScan ■ Cateway Cold Service and Support for Portable PCs **Prices starting at $2099** Business Lease †$77/mo.

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NS-7002 Standard Workgroup Class Server ■ Intel 300MHz Pentium II Processor with 512K Cache (expandable to two processors) ■ Error-Checking and Correcting Memory Subsystem with 64MB RAM ■ Several RAID Upgrades available ■ 4GB Ultra Wide SCSI Hard Drive ■ 12X SCSI CD-ROM Drive and 3.5" Diskette Drive ■ 3Com 10/100 Ethernet Adapter ■ Seven-Bay Server Tower Case ■ 325-Watt Power Supply ■ 104* Keyboard & Microsoft IntelliMouse ■ InforManager™ Server Management system with ActiveCPR Processor Protection *Intel Pentium Pro® models available **$3299** Business Lease †$121/mo.

NS-8002 Standard Department Class Server ■ Intel 300MHz Pentium II Processor with 512K Cache (expandable to two processors) ■ Error-Checking and Correcting Memory Subsystem with 128MB RAM ■ Quick Hot-Swap (QHS) RAID Storage System with three channel controller ■ (Three) Hot-Swappable 4.2GB SCA Hard Drive ■ 12X SCSI CD-ROM Drive and 3.5" Diskette Drive ■ 3Com 10/100 Ethernet Adapter ■ Thirteen Bay Server Tower Case ■ Dual 365-Watt Redundant Power Supplies with Loadshare Capability ■ 104* Keyboard & MS IntelliMouse ■ InforManager Server Management System with ActiveCPR Processor Protection *Intel Pentium Pro Models available **$7999** Business Lease †$293/mo.

NS-9006 Standard Enterprise Class Server ■ Two Intel 200MHz Pentium Pro Processors with 512K Cache (expandable to six processors) ■ Error-Checking and Correcting Memory Subsystem with 128MB RAM ■ Quick Hot-Swap (QHS) RAID Storage System with Three Channel Controller ■ (Three) 4.2GB SCA SCSI Hard Drives ■ 12X SCSI CD-ROM Drive and 3.5" Diskette Drive ■ 3Com 10/100 Ethernet Adapter ■ Double-Wide Fourteen-Bay Chassis ■ N+1 Power Supply Susbsystem with Two Hot-Pluggable 350-Watt Power Supplies (upgradeable to four) ■ 104* Keyboard & MS IntelliMouse ■ InforManager Server Management system with ActiveCPR processor protection **$12,999** Business Lease †$476/mo.

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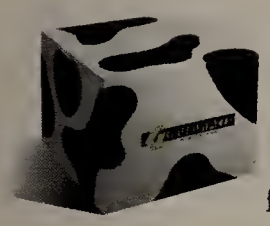

As you know, reliable servers are the key to a smooth-running network. What you may not know is that our line of GATEWAY™ servers offers advanced fault-tolerance features, such as a redundant/hot pluggable power supply subsystem, multiple cooling fans and multi RAID storage support. These servers will save you financially, too — costing you a substantial amount less than other servers offering these very same features. So, if you really want to maximize your budget, consider the company that stops at nothing to help you. Gateway. For more information on Gateway's line of servers, give us a call today.

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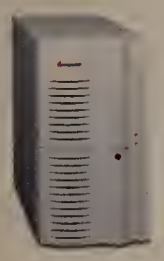
NS-7002 Workgroup Class Server



- Intel® 300MHz Pentium® II Processor with 512K Cache (expandable to two processors)
- Error-Checking and Correcting Memory Subsystem with 64MB RAM
- Several RAID Upgrades Available
- 4GB Ultra Wide SCSI Hard Drive
- 12X SCSI CD-ROM Drive & 3.5" Diskette Drive
- 3Com® 10/100 Ethernet Adapter
- Seven-Bay Server Tower Case
- 325-Watt Power Supply
- 104+ Keyboard & Microsoft® IntelliMouse™
- InforManager™ Server Management System with ActiveCPR Processor Protection

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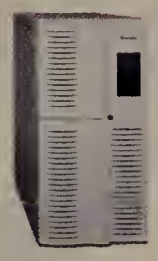
NS-9006 Enterprise Class Server



- Two Intel 200MHz Pentium® Pro Processors with 512K Cache (expandable to six processors)
- Error-Checking and Correcting Memory Subsystem with 128MB RAM
- Quick Hot-Swap (QHS) RAID Storage System with Three Channel Controller
- Three 4.2GB SCA SCSI Hard Drives
- 12X SCSI CD-ROM Drive & 3.5" Diskette Drive
- 3Com 10/100 Ethernet Adapter
- Double-Wide Fourteen-Bay Chassis
- N+1 Power Supply Subsystem with Two Hot-Pluggable 350-Watt Power Supplies (upgradeable to four)
- 104+ Keyboard & MS® IntelliMouse
- InforManager Server Management System with ActiveCPR Processor Protection

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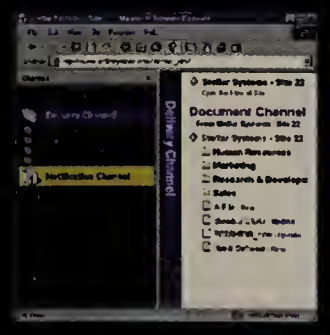

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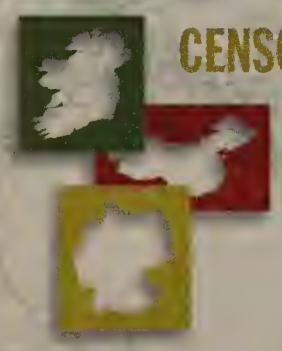

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NetworkWorld Fusion

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This Week

Only on Fusion

Internet. Weary of Web browsers the size of Rhode Island? You don't have to use bloatware from Netscape or Microsoft. We take a look at some lightweight – and surprisingly sophisticated – alternative browsers. Plus, we interview the author of Cello, the world's first graphical browser for Windows, on the state of the browser market. **DocFinder: 4421**

Keeping Current. So you're sitting there as the sales rep describes his company's Grand Vision of the Networking Future – and why you should buy into it. Fred McClimans helps you decode the marketecture and determine what to believe. **DocFinder: 4423**

Front page

Read our article on the Justice Department and Microsoft, then come online for court filings and other documents related to the original Windows-bundling court case. **DocFinder: 4419**

DSL. When done with our article about competitive local exchange carriers offering DSL services, link to Fusion for background info on the technology, including an ADSL audio primer. **DocFinder: 4418**

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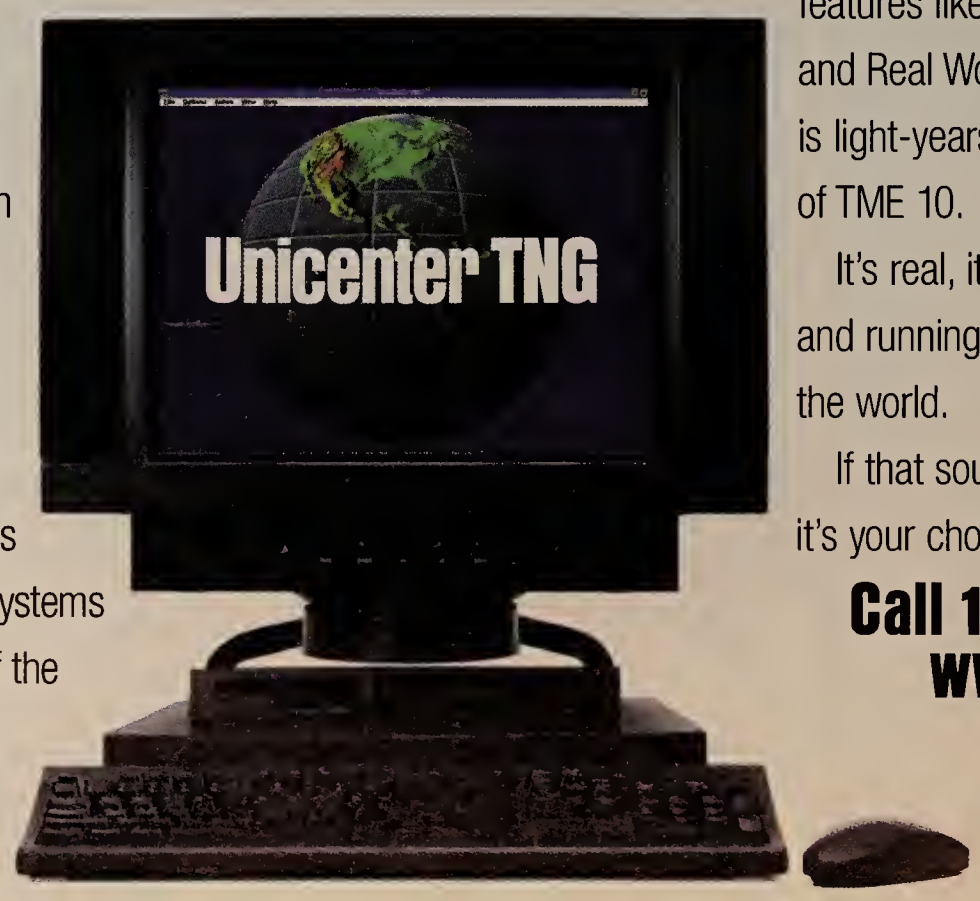

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Wizards for Easy Customization	✓	

News briefs, October 27, 1997

Suing for ideas

Brent Townshend, the man who claims to own the ideas behind 56K bit/sec modems, is suing Rockwell Semiconductor Systems for all the money it has made selling fast modem technology. In a lawsuit filed recently in San Mateo, Calif., Townshend says that by selling 56K bit/sec modem chips, Rockwell broke a confidentiality agreement it made with him in 1996. Rockwell says the suit has no merit.

In the suit, Townshend says he met with Rockwell engineers in an effort to license them his 56K bit/sec modem ideas. But before disclosing them, the engineers assured him they would keep Townshend's ideas confidential and not use them, the lawsuit says. Townshend claims that based on that meeting, Rockwell wanted to license his 56K bit/sec modem ideas, but Townshend turned the offer down. In April 1996, Townshend licensed that same intellectual property to U.S. Robotics instead. Rockwell claims the suit will hamper the effort for standards bodies to agree on a 56K bit/sec modem specification by January.

PointCast pushes new president

PointCast's *Dorman*

Internet push technology pioneer PointCast, Inc. has ended its four-month search for a new CEO, tapping telco veteran David Dorman to replace company founder Chris Hassett effective Nov. 3. Dorman, 43, is former chairman and president of Pacific Bell. Hassett, who announced in June that he would step aside as CEO, will become chairman of PointCast's board of directors. The Sunnyvale, Calif.-based company has been seeking a media industry veteran to help it compete against larger, new competitors such as Microsoft Corp. and Netscape Communications Corp. (See full story at www.nwfusion.com. Enter DocFinder number 4422.)

US WEST goes DSL

US WEST, Inc. this week is expected to announce availability of its first digital subscriber line service. Restricted to certain areas of Arizona and Utah, MegaB!T will offer speeds of 192K bit/sec, 320K bit/sec and 704K bit/sec over regular phone lines, providing dedicated access to the Internet or corporate networks. The Arizona tariff allows initial prices of $60 per month for 192K bit/sec, with a ceiling of $120 per month. The allowable price range is $85 to $170 for 320K bit/sec and $163 to $326 per month for 704K bit/sec.

IP telephony Part I: Lucent open for business

Lucent Technologies, Inc. last week announced general availability of its Internet Telephony Server (ITS) in separate versions for enterprise users and carriers. The enterprise version of ITS is available in a turnkey package, which includes Compaq Computer Corp.'s ProLiant 2500 Pentium server running Windows NT outfitted with telephony interface cards from Natural Microsystems, Inc. Pricing runs $2,500 to $4,000 per port, considerably higher than typical PBXs, but ITS offers the possibility of eliminating carrier tolls.

IP telephony Part II: TouchWave starts up

Start-up TouchWave, Inc. last week announced an IP telephony switch for small and midsize businesses. Its WebSwitch device links telephone with IP-based data networks to cut costs and provide easy management of communications, company executives said. WebSwitch replaces a traditional PBX. The switches have Ethernet connections so they can be connected to LANs, as well as phone line connections for 16 extensions. To replace a PBX, a company only needs to take out the copper wires connected to the PBX and connect them to the WebSwitch.

More than 16 users can be connected by linking several WebSwitches together, for a maximum of 150 users. WebSwitch will be available in December for $500.

Antispam measures falling short

Electronic messaging group warns problem likely to get worse.

By Paul McNamara
Santa Cruz, Calif.

Today's spam filters and proposed legislative remedies to the junk e-mail problem all have one thing in common, according to the Internet Mail Consortium (IMC): They won't stop a determined spammer.

Moreover, the IMC warns that short of an outright ban on spam, highly motivated, increasingly clever and better-bankrolled spammers are likely to outpace the best defensive efforts of e-mail vendors and their corporate customers.

And then there's the really bad news: Hordes of legitimate direct marketers, who until now have eschewed bulk e-mail for fear of tarnishing their corporate images, may soon conclude that spam is here to stay and decide they need to get into the game. This, the IMC predicts, would open mail servers everywhere to unprecedented volumes of network-choking messages.

The bleak assessment is contained in a recently released IMC report entitled "Unsolicited Bulk Email: Mechanisms for Control" (www.imc.org/ube sol.html). The report endorses neither a particular filtering solution nor an outright ban on spam, according to IMC Director Paul Hoffman, but rather attempts to highlight spam-defense weaknesses and prepare Internet mail users for the prospect of worsening gluts.

"What we're seeing now is the beginning of the wave," Hoffman said. "Once there's any significant spam from a legitimate company, then you're going to see everybody doing it."

IT managers contacted last week echoed IMC's finding that spam is becoming more bothersome, despite ongoing efforts to employ the best countermeasures available.

"Yes, it has become quite a big problem of late," said Ramesh Viswanathan, senior systems analyst at Siemens Corporate Research, Inc. in Princeton, N.J. "Initially, it was only a trickle of spam that we used to receive, but now our users receive quite a lot on a daily basis."

While frustration over spam mounts among e-mail administrators, there remains a cautiousness on the part of those affected to embrace the most sweeping remedies being proposed; in particular, an outright ban.

"As far as action that the industry or government could take, I'd hate to see anything so radical that it hampers our customers' ability to conduct business with us via e-mail," said Tim Hickernell, senior engineer at Commonwealth Edison Co. in Chicago. "We have a published phone extension assigned to most employees, so I would hope the user community will eventually mature enough to allow e-mail to be used for business in the same manner as the telephone."

Antispam legislative proposals that rely on spammers' willingness to honor opt-out lists and truthful-labeling regulations are unlikely to be effective, according to the IMC, unless enforcement measures are swift, sure and painful.

"It probably costs spammers less than a tenth or a hundredth of a cent to send you e-mail," Hoffman said. "It actually costs them more to [comply with opt-outs], and, therefore, a lot of them are just not going to do it."

Some of today's antispam measures are capable of weeding out much of the amateurish junk e-mail on the 'Net, according to the IMC. But the likelihood of even that edge being maintained is not high, Hoffman said.

"It is easy for spammers to get more sophisticated, and it will behoove them to get more sophisticated because the return is still so great," Hoffman said. "They could spend even an extra thousand dollars per mailing and still probably have it be worth their while."

While some people see spam as little more than an annoyance, Hoffman's worst-case scenario envisions a world where corporations and individuals find that the price of dealing with spam — in dollars and in time — is prohibitive.

"Usenet has become unusable because of spam," Hoffman said. "If that starts happening to Internet mail, we're really up a creek." ■

Why spam remedies don't work well

Address and content filters fall short because:

- Spammers relay messages through Simple Mail Transfer Protocol servers of unsuspecting companies.
- Maintaining lists of banned senders is difficult and risks loss of wanted messages.
- Disguising spam to look like legitimate e-mail is relatively easy.

Proposed antispam legislation would:

- Be difficult for government and/or victims to enforce effectively.
- Hamper desirable commercial e-mail if written too broadly.
- Spawn less-popular attempts to ban other types of e-mail.

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Java developers ready to Swing

New JavaSoft release will improve the look and feel of Java applications.

By Chris Nerney

Developers soon can begin giving their Java applications much-needed face lifts with a new set of components rolling out this December from JavaSoft. The Sun Microsystems, Inc. subsidiary's new technology, dubbed Swing, controls the look and feel of the graphical user interface (GUI) viewed by Java application users.

The new software addresses one of the major criticisms of Java applications: The quality of their GUIs have been poor, often reflecting the specific platforms on which the applications run.

"If you look at any Java interface, it's ugly," said John Biasi, an analyst with Hurwitz Group, Inc., of Framingham, Mass. "It's not as visually appealing as a Windows interface."

This is a potentially dangerous flaw for Sun because many developers think they ultimately may have to choose between Sun's way of building Java applications and Microsoft Corp.'s alternative method.

Each company offers its own set of graphics and network services class libraries for Java-based tool kits, applications and browsers.

Swing is the first installment of Sun's next Java Foundation Classes (JFC) upgrade.

The rest of the new JFC components, including features that enable drag-and-drop between Java and non-Java applications, as well as 2-D capabilities for advanced graphics, are scheduled to ship with Java Development Kit (JDK) 1.2 next spring.

One reason Swing is being shipped ahead of other new JFC components is that it does not require JDK 1.2 to run, while the other JFC functions do.

Whatever the reason, frustrated third-party and corporate developers say the commercial release of Swing will not come soon enough.

"It will really push forward user interfaces, which I think have been lacking in Java commercial products," said Ted Young, president of Advanced Web Technologies Corp. of New York.

Another third-party Java developer, Scott McMullen of Inovie Software, Inc., in San Diego, said he has been eagerly awaiting a final version of Swing, which he called "very rich in functionality."

JFC time line

Swing, which allows developers to manipulate the look and feel of GUIs, is part of Sun's Java Foundation Classes (JFC), the class libraries for Java-based tool kits, applications and browsers.

- **April 1997:** JFC introduced at JavaOne conference in San Francisco
- **July 1997:** JFC begins shipping
- **October 1997:** Final beta version of Swing made available
- **December 1997:** Swing scheduled to begin shipping
- **Spring 1998:** Next version of JFC set for release

"I've had to endure monthly changes [to Swing] since last spring," he said.

Officials at Sun's JavaSoft division said changes will no longer be a problem. A beta version of Swing, made available with little fanfare on Oct. 7, includes APIs that have been "frozen" and therefore will not be altered for the commercial release.

"Developers can start using the latest beta release for producing next-generation versions of their products," said Adam Abramski, JavaSoft's JFC evangelist.

For now this leaves out Java developers using Windows because Microsoft is refusing to support JFC, opting instead for its own Application Foundation CIasses for Java.

Ironically, Microsoft was part of an industry advisory council that worked on the JFCs, Abramski said.

Netscape Communications Corp. earlier this year also had been working on its own Java cIass libraries, the Internet Foundation Classes, but has abandoned them to collaborate with Sun on the JFCs.

While Swing may "help defray one of the key knocks that people have regarding Java," neither Swing nor the JFCs will be instrumental in determining the outcome of the Microsoft-Sun Java war, Biasi said.

"The bigger problems Java has to face are on the server side," he said. "Sun wants those servers to be Java, and it's got a lot of battles to fight to get there." ■

3Com pumps up net management app with Web interface

New device manager for the Windows NT environment is first to be Webified.

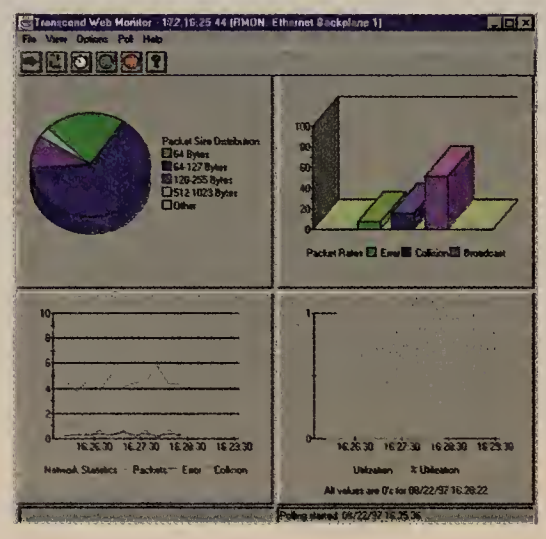
By Jodi Daniels
Santa Clara, Calif.

3Com Corp. this week will bolster its Transcend Enterprise Manager (TEM) software by announcing a port to the Windows NT Server and the addition of a Web client interface.

The obvious benefit of Web-based management is it allows net managers to access key management functions from desktops anywhere on the corporate intranet.

With 3Com's Web-enabled TEM application — designed for 3Com network gear — a manager can remotely troubleshoot a network by checking device status, accessing device-specific views and running statistics or diagnostics tests.

"When we are out troubleshooting a problem in the field, we can just Web in and get the network management applications from anywhere in the network," said a network manager at Genesis Health Ventures, Inc., a services company for the elderly based in Kennett Square, Penn., who preferred to remain anonymous. "Anything you can do in front of the console, you can now do from the Web, which is a tremendous time-saver."



3Com's *Transcend Enterprise Manager for NT allows customers to monitor 3Com devices — for key statistics such as utilization — from the Web.*

Although there are an abundance of net management products in the industry with Web front ends slapped on them, 3Com's TEM goes beyond competitive offerings, one analyst said.

"3Com is ahead of the pack here by offering a truly interactive product," said Mark Bouchard, research analyst at META Group, Inc., a Stamford, Conn.-based technology assessment and consulting firm. "It's a fully functional interface allowing not only viewing from the Web, but actual configuration work to be done. A lot of other [vendors' Web management products] provide only static views of various information, such as an event log."

One highlight of 3Com's Webified TEM is a home page feature, called Transcend Central, which provides a single view of all 3Com equipment.

"[Transcend Central] gives customers a starting point to launch various management tools," Bouchard said. "The home page concept really makes for easy navigation."

Industry observers said porting TEM to NT makes sense.

"Everybody recognizes NT is going to be the application server of choice going down the road, so 3Com is right on target delivering the management solution on NT," Bouchard said.

The application allows customers to manage the network from an inexpensive PC, rather than a complicated and costly Unix box.

One caveat is that TEM for NT only works in the HP OpenView Network Node Manager for NT environment, Bouchard said.

TEM for NT, which will ship in November, costs $9,495. 3Com will extend the Web capabilities to its existing Unix device manager via a free upgrade in March 1998.

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And in this corner, 3Com's Benhamou

CEO answers criticisms raised by Cisco chief in Network World *Q&A, tackles other topics.*

For all of his success as CEO of 3Com Corp., Eric Benhamou has to contend with the fact that archrival Cisco Systems, Inc. is running away with the game, amassing acquisition after acquisition and driving up revenue (*NW*, Oct. 6, page 12). In part to keep pace with Cisco, Benhamou has architected one of the largest mergers in the history of our industry, marrying 3Com to U.S. Robotics. *Network World* Editor in Chief John Gallant caught up with Benhamou at NetWorld+Interop 97 to discuss the changing face of competition.

Eric, besides your traditional competitors — the Bays, Ciscos and Cabletrons — the acquisition of U.S. Robotics (USR) pits

you against new competitors, and companies such as Lucent and Nortel are coming at you from the telecom side. Who do you focus on as the competition these days?

We've stopped focusing on any one primary competitor and have begun to look at it by market segment. And in every broad market segment we know there are a few companies we should worry about more than most.

In the enterprise [market], we worry about Cisco as well as Bay and Cabletron. There is almost no deal that we win without setting out to beat Cisco. In remote access it's Ascend more often than Cisco. We hardly see anyone else there. In the network interface card [NIC] space the only competitor we worry about is Intel. All of the others have fallen by the wayside. In modems the only real competitor is Rockwell. The other modem vendors are basically distribution channel partners for Rockwell.

On a longer term, strategic basis, we worry primarily about Cisco as it attempts to expand beyond its native space, and we worry about the telecom-oriented vendors who may want to expand into the networking space.

Some folks say that Cisco, teamed with Microsoft and Intel in the so-called Wintelco triad, controls the industry. Do you believe that?

In one word, no. They have a strong presence in some markets but are absent from many others that I think are just as strategic over time, like the small businesses and the consumer markets. These markets will be absolutely formidable — as large as the enterprise markets is — 10 years from now.

Cisco's CEO John Chambers says the diversity of your product line — stretching from the consumer all the way up to the carrier market — makes it difficult to deliver any kind of meaningful integration.

This is a strength, not a weakness. We have cultivated that diversity because this is where the market is going. The market is broadening. It is true that it is an ambitious endeavor, and this is not a strategy that makes sense for a lot of people. It makes sense for us because we've been able to grow in every market year after year. We've gained share in the key segments in every market, and we have developed in a fairly harmonious way a set of channels that give us access into all of these markets.

Let me get your reaction to this quote from Chambers about your merger with USR. "I think the merger speaks to how rapidly we [Cisco] are pulling away from the rest of the industry. The fact that Eric would do a combination with a company of equal size halfway across the country speaks to how much risk he is willing to take on to stay close to Cisco."

It is definitely one of the factors that went into our thinking. Critical mass is a factor. It was not just aimed at Cisco. It was aimed at a much broader phenomenon: industry consolidation.

Where do you think Cisco is weakest? Most vulnerable?

First, their fundamental bread-and-butter product line is no longer in a high growth segment. The general purpose router market is at best a flat segment and will probably decline before the end of the decade. That product line is getting subsumed by many other new segments, including Layer 3 switches, which I think will provide all of the traffic management and control the enterprise needs. In that space we're clearly ahead of them, from a product perspective, from an intellectual capital perspective and from a marketing perspective.

The second weakness is their failure to parlay their strong position in routing into the remote access field. They should not have allowed Ascend to get ahead. They should not have allowed U.S. Robotics to get ahead, and they did.

The third weakness is more of a positioning weakness. When they purchased StrataCom it was with a deliberate intention to compete for the network infrastructure of carriers. And in that battle they compete against Siemens, Lucent, Nortel, Fujitsu, Erickson . . . very, very large established companies that have broad, deep relationships with carriers. We, on the other hand, have chosen not to cross this line. We are forming partnerships instead.

One area 3Com has a significant lead over Cisco in is Gigabit Ethernet. How do you plan to take advantage of that?

I'm actually surprised at this on their part because I would have expected them to move into gigabits. And I think it's probably not a lack of desire on their part, but probably some execution problems that have arisen over time.

We're going to take advantage of being much earlier to market with a product we're extremely proud of, the CoreBuilder 3500, and soon the 9000. Basically we're building a system strategy where that line of products sits at the core and provides a combination of bandwidth expansion and traffic control in data centers and major campus backbones.

Well, how about those other competitors? What do you make of Bay and Cabletron now that they both have new management talent.

Bay has done a good job creating a better, more competitive product portfolio. They had a strong customer base and a strong base of resellers. If you couple this with a better product cycle, inevitably they can resume their growth. So I wouldn't be surprised if they had a resumption of growth over the next few quarters. However, it takes more than just resuming growth to become a leader. They have lost a lot of their image and relationships along the way.

What about Cabletron?

I think Cabletron has perhaps more inertia in its business than anyone else by virtue of having such close, direct relationships with a few large enterprise customers. Therefore, it would take a long time for Cabletron to be wiped out by a business downturn. But by the same token, Cabletron has always suffered from being too narrowly focused, so they miss several technology waves.

And Intel? What is to stop Intel from taking over your core NIC business?

Because there is a fundamental architectural difference between the processing subsystem and the communication subsystem. It requires very, very different engineering skills, and they're just not known for that. It is remarkable that a company as financially wealthy as Intel has tried repeatedly to buy its way into this market by either buying companies or engaging in a lavish promotion or by aggressively slashing prices. And it still ends up losing shares quarter after quarter against us.

I want to ask you about the 56K modem market. Is 56K the height of the modem technology, or are you going to push it beyond that?

It is likely that the analog modem market will end at 56 kilobits. But I think the analog modem is a narrow way of defining the modem market. Our view is that there will be a diversity of new modem technologies over the coming years — most of them digital based. Some of them [will be] landlines, some of them cable, others copper, others fiber, others wireless. We want to parlay our dominance of the modem market into all of these segments.

It is likely that there is going to be a 56K standard very soon, and that most of the world will migrate to it because it's just the best you can get out of existing infrastructure with minimum incremental investments.

What's exciting to us is this is a market we stand to lead in a fundamental way. We've emerged as a strong leader and we own the intellectual property, so this is a good market for us, a bad market for everyone else.

One final question. We're hearing more and more about voice from traditional data network companies. What's 3Com doing here?

I think it's the broader topic of delivering multimedia services on the data infrastructures. I think this is a fundamental shift in the marketplace that we want to ride very aggressively by providing platforms that provide multimedia services.

Our Access Builder platforms have been used very successfully by large corporations to deliver voice, video and data integrated on the same trunks.

In addition to this, voice over IP is an area in which we've made major investments in collaboration with Siemens.

We will also support voice services on the subscriber side, subscriber side meaning today you buy a modem from us, you buy PalmPilots from us, you buy data devices from us. At some point, these devices will be able to support voice as well. And, of course, that voice will be digitized, and the voice bits will be sent into IP packets across the data network.

Did you say you were going to put voice on a Pilot?

Did I say that? There's going to be so many things in the Pilot; you're going to be blown away. ■

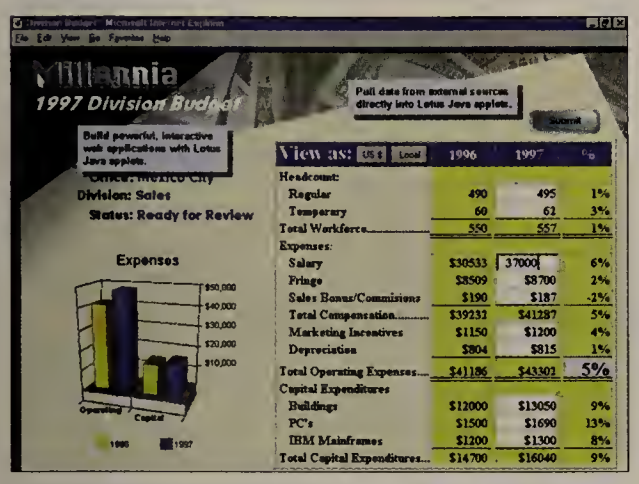
PHOTOS: STEVE BORRIS

Java applets could spark thin client demand

Kona applets include spreadsheet, word processor, presentation graphics and database access programs.

By John Cox and Paul McNamara
Cambridge, Mass.

Lotus Development Corp. next week will formally unveil a set of Java applets, called Kona, that are intended to give network computer (NC) users an array of basic but essential office capabilities.



One of Kona's Java applets *lets you build Web applications by allowing you to access remote SQL and JDBC data sources.*

NCs do away with the Windows operating system. Instead, Java applications are run locally, and Unix, mainframe and Windows applications are accessed from servers. The Kona applets, along with software that lets them interoperate and access legacy systems, will be among the first widely available Java applets aimed at the general business end user.

Lotus users and business partners seem to be eagerly awaiting the applets, which include a word processor, spreadsheet, presentation graphics tool and database access program. Kona will let customers deploy a more varied array of Web-based personal productivity applications to a wider audience of end users than is possible today.

"We want to replace Microsoft Office and PCs for about 15% to 30% of our users who today use just a fraction of the functions found in [Microsoft] Office," said William Homa, CIO of Hannaford Bros. Co., a Scarborough, Maine-based grocery chain.

Hannaford is deploying IBM Netstation NCs, but these have been limited to accessing Unix or mainframe applications. "We're looking for Kona to give us the additional functionality so we can roll out these [NCs] to new types of users," said Homa.

Lotus business partners plan to use Kona applets right away. "We definitely will be taking advantage of them once they are available. Kona really extends our application to wider audiences," said Hal Macumber, vice president of consulting and product development at Quality Decision Management, Inc. (QDM), in North Andover, Mass.

QDM's workgroup automation software, called BB Project, today uses Lotus' ActiveX Controls, called Components. The Kona applets will let BB Project users access the same features from a Web browser without having to install client software on their PC, as is necessary today with Components.

Users who have worked with early releases of Kona say Lotus is delivering on its promise. "It's a good move, a great product set. Kona seems relatively comprehensive," said Ron Rassner, a senior consultant at Creative Networks, Inc., in Palo Alto, Calif.

"They ran fine. They did what they were advertised to do. I did some fairly simple spreadsheet stuff and it seemed intuitive to me," said Hannaford's Homa of the beta applets. His only concern is how much training his users will require to adjust to the Kona user interface. "But I think we can overcome that," he said.

Although the applets may not satisfy the needs of power users, "a vast untapped market [exists among] late adoptees and unsophisticated users," said Rassner. "So the potential there is dramatic," he said.

But the critical question is whether that potential will be realized. Instead of standardizing on a single suite, such as Microsoft Office, corporate MIS groups face the prospect of several different user interfaces and applications. Proponents of the Java platform argue that standards such as write-once, run-anywhere 100% Pure Java programs, the JavaBeans specification, and HTML will form a common medium for sharing information over the enterprise. ■

Lotus extends core cc:Mail product

By Kathleen Ohlson
Cambridge, Mass.

Lotus Development Corp. last week began shipping cc:Mail 8.1, a new version of the company's e-mail package that includes expanded routing capabilities.

The cc:Mail upgrade features an enhanced cc:Mail Router for Windows NT. The message transfer agent now supports Novell, Inc.'s SPX protocol so NetWare networks can be used for routing Windows NT-based traffic. The routing software also supports more modems — expanding from eight modems supported to 99 — which allows more mobile users to connect at a time.

A server-based rules agent also has been added to cc:Mail 8.1. The agent automates mail tasks that are usually done manually, such as disposing of spam and categorizing e-mail, without needing to turn on the user's computer, according to Lotus.

The new version of cc:Mail also features a minor tweak to its Windows 95/NT client. The client, which will be available in November, will offer more sorting options for mail, as well as password protection.

A Lightweight Directory Access Protocol (LDAP) Directory Connector and

See cc:Mail, page 18

Comsat launches all-in-one satellite service

Link One offering delivers ATM, frame relay, SS7 and ISDN traffic over VSAT networks.

By Denise Pappalardo

Comsat Corp. last week announced a service that will let companies send a variety of data types across satellite networks using a single access device.

The company's new Link One offering will enable customers to feed ATM, ISDN, frame relay and even Signaling System 7 (SS7) traffic onto very small aperture terminal (VSAT) networks, which could carry the traffic at rates from 2M bit/sec to 32M bit/sec.

The service could be attractive to customers with established WANs who want to add remote international sites without much fuss.

For example, a New York-based company using frame relay to connect its LANs domestically could use Link One to tie in a manufacturing plant overseas (see graphic). Instead of trying to buy international landline data services, a customer could connect a Link One access device to a port on its existing frame relay router that is dedicated to all traffic sent between New York and an overseas site, said Leister Maynard, a principal engineer at Comsat. The Link One device would forward traffic to a VSAT dish, which would deliver the traffic to its destination via satellite. A Link One device also would need to be installed at the remote location.

Today, most satellite data services require users to deploy multiple access devices to transport different types of traffic, said David Berndt, program manager at The Yankee Group, a Boston-based consulting firm.

The Link One access device is based on Time Division Multiple Access (TDMA) technology with a mix of some proprietary software, said Susan Miller, vice president of advanced application management at Comsat. The TDMA piece lets the access device transport ATM, ISDN, frame relay and SS7 traffic over Comsat's satellite network simultaneously, she said.

The Link One access device also is responsible for allocating the appropriate bandwidth on the satellite, Miller said. Link One detects the amount of bandwidth to reserve based on an ISDN signal or the committed information rate of an ATM or frame relay permanent virtual circuit.

Up to 15 Link One devices can be stacked to support increased transmission rates.

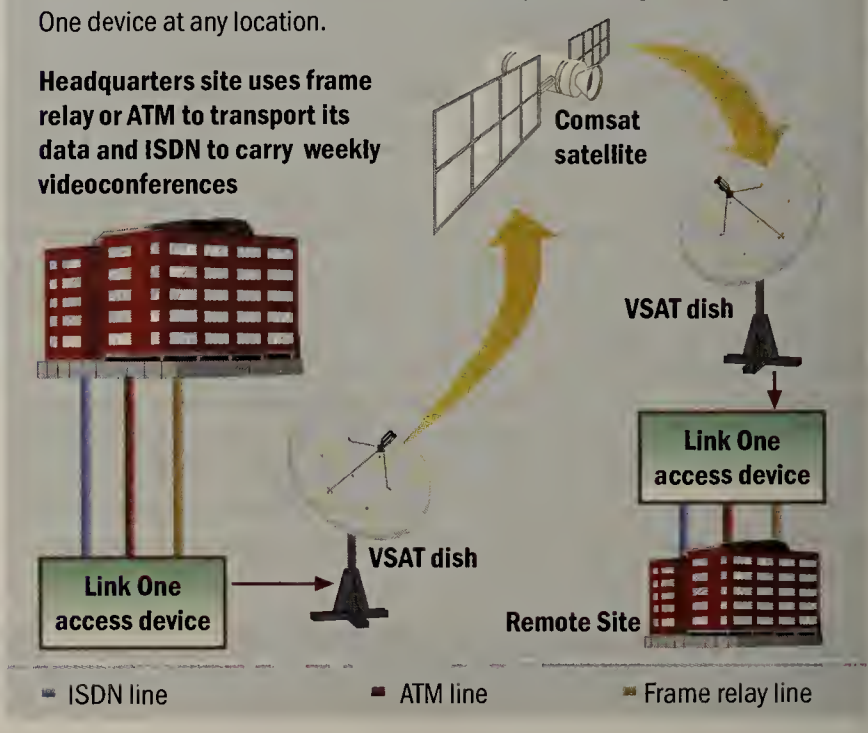
Link One also is targeted toward telecommunications carriers and Internet service providers that want to extend the reach of their network services. Hence, the need for SS7 support. SS7 is basically the intelligence of the public switched telephone network that is responsible for quickly switching telephone calls and providing information such as a call's originating point.

The technology was announced last week, but it will not be available until mid-1998. Pricing still has not been set. Comsat is negotiating a manufacturing deal that will determine how much the Link One devices cost, Miller said. Pricing information could be available by year-end, she added.

✆ Comsat: (301) 214-3436

All-in-one connectivity

Comsat's Link One access technology and service will let very small aperture terminal (VSAT) customers exchange ATM, frame relay and/or ISDN traffic via satellite connections. All of the traffic can pass through a single Link One device at any location.



cc:Mail

Continued from page 17

more Internet connectivity also have been added to the new version of cc:Mail. The Directory Connector will allow Internet e-mail client users to look up names in the cc:Mail directory. This also will provide an upgrade path for cc:Mail users to migrate to Domino, the company's Web-oriented groupware product.

The new cc:Mail version has Post Office Protocol 3 and Internet Message Access Protocol 4 connectors now supporting Secure Socket Layers 2.0 and 3.0, while the software's link to Simple Mail Transfer Protocol now runs on Windows 95 as well as Windows NT.

Version 8.1 of cc:Mail costs $55. Contact Lotus at (617) 577-8500.

Ohlson is a correspondent with IDG News Service's Boston bureau.

Cisco launches multimedia product strategy

By Joy Dietrich
Paris

Cisco Systems, Inc. last week unveiled a new network plan that ultimately will let users build integrated voice, data and video enterprise networks more easily.

The company announced products and a five-pronged plan, called Multiservice Networking, which will let users combine voice and data networks to save voice and network infrastructure costs.

Until now, companies have had to set up separate networks to exchange e-mail, telephone and videoconferencing traffic.

Cisco 3600 series routers *will ship with a new voice-over-IP module by year-end.*

As the first part of its five-phase strategy, Cisco will ship a new voice-over-IP module for Cisco 3600 series routers before year-end, company executives said.

Priced at $650, the four-port voice module consists of four analog voice ports and will link a router with existing telephones, fax machines, key systems and PBXs.

The voice-over-IP-enabled 3600 will let customers off-load branch office voice traffic from the public switched telephone network and route the traffic across a company's existing intranet.

In addition, the box can route interoffice fax traffic across a company's data network or through extranets using fax machines.

To improve the quality of voice service, Cisco is offering its IOS software, such as Resource Reservation Protocol (RSVP) and weighted fair queuing (WFQ). RSVP guarantees bandwidth by reserving it across a set of routers, while WFQ queues voice-over-data packets if several are waiting, Cisco said.

In addition, Cisco uses dedicated Display Systems Protocol architecture to provide enough processing power for voice compression, echo cancellation, silence suppression and jitter buffer management without placing unnecessary burdens on the router. Cisco also announced the availability of ATM circuit emulation capabilities for the company's Catalyst 5500 series switches.

The circuit emulation module allows legacy systems that do not support IP, frame relay or ATM protocols, such as PBXs and legacy time-division multiplexer systems, to be transported over ATM infrastructures.

In the second phase of its strategy, by the early part of next year Cisco plans to announce larger scale, higher density digital voice packet gateways on a carrier-class platform.

These packet gateways will enable Internet telephony service providers to offer residential and business-class services for Internet telephony.

Although details of the last three phases were not available, Cisco plans to launch further components of its Multiservice Networking strategy over the next three quarters.

One of the future Multiservice Networking applications likely will be in the area of Web and call center integration.

Dietrich is a correspondent with IDG News Service's Paris bureau.

NETWORLD+INTEROP 97 PARIS

Compaq takes Gigabit Ethernet plunge

Company shows off new switch at NetWorld+Interop Paris trade show.

By Joanne Taaffe
Paris

Compaq Computer Corp. will make its initial Gigabit Ethernet products available in the first half of next year when the company launches switches and network interface cards (NIC) for servers.

Last week at NetWorld+Interop 97 here, Compaq showed a switch with 16 10M/ 100M bit/sec ports and six Gigabit Ethernet ports.

The company also recently showed a Gigabit Ethernet switch at the Interop show in Atlanta that was an OEM version of Extreme Networks, Inc.'s Summit device (*NW*, Oct. 13, page 1).

The new Gigabit Ethernet switches will provide Layer 3 switching to accommodate high-speed backbones and allow for backbone meshing — although not necessarily on the same switch.

Gigabit Ethernet next year will come into its own when server bus speeds ramp up to a potential bandwidth of 4G bit/sec, said Jeff Wilbur, director of Compaq's hub products business unit.

The Gigabit Ethernet switches will cost approximately three times more than their 100M bit/sec cousins, but will promise to boost performance tenfold, Wilbur said.

Gigabit Ethernet switch prices are likely to fall in the range of $900 to $1,000 per port, compared with $300 to $500 per port for 100M bit/sec switches, observers said.

Wilbur expects prices to drop to half of the launch price within two years. Gigabit Ethernet NICs also will be three times more expensive than existing cards, he said.

Compaq actually was one of the first companies to get involved in the Gigabit Ethernet market, more than two years ago joining Sun Microsystems, Inc. and 3Com Corp. in early standards efforts.

For more information, contact Compaq at (713) 370-0670.

Taaffe is a correspondent with IDG News Service's Paris bureau.

Microsoft

Continued from page 1

ings to ship as planned next year.

The Justice Department claims that Microsoft forces PC makers to feature Internet Explorer prominently if they want to package Windows with their computers. Microsoft does not deny the practice, but says it is in keeping with a consent decree the company signed with the Justice Department in 1995. Microsoft says there is no doubt Internet Explorer is part and parcel of Windows 95, but the Justice Department's antitrust division says, "No way."

A U.S. District Court judge will decide who is right in the coming months.

All eyes will be on the court to see if it will place any limitation on the extensive browser/operating system integration Microsoft has planned for Windows 98 and NT 5.0. Already in beta, the products use the Web browser as the primary interface for surfing all local, network and Web data.

Observers note that Microsoft is not the only company looking to shift to an integrated desktop and Web interface — rivals Netscape Communications Corp. and Sun Microsystems, Inc. have outlined similar plans.

"It's a critical moment for the [Department of Justice] to look at whether this trend will be controlled by Microsoft based on its historical control of the [operating system]," said Yochai Benkler, a professor at New York University School of Law.

Benkler declined to speculate on whether the court might stop Microsoft from completing this full integration. "The edges of the operating system in this case are just too fluid to make that type of prediction," he said.

Microsoft rival Sun was not so tentative.

"The court could very well force Microsoft to pull the browser out of Win98," said Micheal Morris, general counsel for Sun. "We may be in a situation where once the product has been established as a separate entity, you can't make it unseparate just by sucking it into the [operating system]. It may be too late for that."

Microsoft opponents said they welcomed any court decision that would curtail Microsoft's market dominance. "The meaning of an OS cannot become dependent on however Microsoft defines it, because then they can define it to the endless disadvantage of competitors and then of consumers," said Gary Reback, a Silicon Valley attorney well known for challenging Microsoft's competitive practices.

Corporate users testing both Windows 98 and NT 5.0 were alarmed that existing upgrade schedules could be adversely affected by a court decision.

Nationsbanc-CRT of Chicago has standardized on Windows NT 4.0 across its 1,000 workstations and is planning an upgrade to NT 5.0 next year. "I like the idea of using a browser to get at any resources I need — local or Web. I still want to have that opportunity," said Rick Shope, manager of PC technology with the trading arm of Nationsbanc Corp.

Scott Winkler, vice president of operating system research at Gartner Group, Inc., in Stamford, Conn., doubted Microsoft will be forced to pull the integrated browser functionality out of either Windows 98 or NT 5.0. But the company will have to make significant changes in how it markets its browser.

"They won't sell the product separately. They won't package it separately. It will no longer have its own home page," Winkler said.

William Neukom, Microsoft's senior vice president of law and corporate affairs, said he expects the ruling to have no bearing on either the delivery of Windows 98 or NT 5.0 or how the company markets the products.

Compaq coerced

In recent subpoenaed testimony, Microsoft's largest OEM, Compaq Computer Corp., supported the Justice Department's contention about Microsoft's tactics.

Compaq officials said they received a letter from Microsoft stating that if they chose to ship PCs with Netscape's Navigator instead of Internet Explorer, Microsoft would terminate Compaq's license to ship Windows 95.

The Justice Department has asked the court to levy a $1 million per day fine until Microsoft stops forcing OEMs to carry its Web browser. ■


STAN BAROUH

"We won't tolerate any coercion by dominant companies in any way that distorts competition."
Janet Reno, U.S. attorney general


MARK ESCHER

"It seems obvious that there are some things that belong in an [operating system] and some things that don't. The browser and the OS are two distinct products."
Jim Barksdale, president and CEO, Netscape

"Seeing [Internet Explorer] as a very simple, obvious extension to the OS for locating and collecting information from the Web is a no-brainer. It is procompetitive and makes technological sense."
William Neukom, senior vice president for law and corporate affairs, Microsoft

Get more information online at www.nwfusion.com. DocFinder: 4419

DSL

Continued from page 1

CLEC Covad Communications Co., based in San Francisco.

Shapero said he expects DSL CLECs with national aspirations to attract $50 million or more to get up and running, a measure of the confidence the financial community has in this technology.

Typical venture capitalists expect to recoup 10 times their investment within five years, said Andy Rachleff, a general partner in Benchmark Capital. Rachleff says that goal can be met by a DSL CLEC that mixes the competitive drive and speed of an equipment vendor with the experience of a service provider.

These DSL specialty carriers have drawn key executives from the ranks of the RBOCs, including NYNEX Corp., Ameritech Corp. and Pacific Bell, and from major enterprise network hardware vendors, including Cabletron Systems, Inc. and Cisco Systems, Inc.

The core team at DSL CLEC North Point Communications, Inc., in San Francisco, consists of people who worked on DSL deployment plans for MFS Communications, Inc.

That kind of experience coupled with big bankrolls separates this new breed of carrier from the initial entrants to the DSL market. Earlier entrants are typically Internet service providers who hang DSL modems on both ends of copper phone wires designed to support burglar alarm circuits. RBOCs have been cracking down on that practice.

DSL CLECs plan to lease copper wires from RBOCs for $20 to $40 per month, provision them, and offer services for less than RBOCs typically charge. They plan to use that lower cost in combination with RBOC inertia to run away with traditional RBOC customers.

DSL CLEC start-ups are ceding the mass-market, residential Internet access customer to the traditional local carrier for the moment because DSL hardware is so expensive that services would be beyond the budgets of most homeowners. But they will be within the means of firms setting up remote access for branch offices and telecommuters.

North Point Communications is targeting small businesses for remote access and virtual private nets.

Covad Communications Co., in San Francisco, is focused on offering secure private lines that will link homes to corporate networks and the 'Net.

CuNet, a division of Network Access Solutions, Inc., in Herndon, Va., will go after corporate remote access as well as provisioning Internet access to customers of Internet service providers.

Vitts, Inc., in Manchester, N.H., will offer both voice and data services at speeds up to 6M bit/sec.

While DSL CLECs and their backers are optimistic, they face significant hurdles.

First, the traditional local carriers are testing DSL with plans to deploy DSL services by early next year. Slow to implement DSL services or not, local carriers are well-funded and already own the necessary copper infrastructure.

Second, winning legal CLEC status is not easy and requires time and expertise. Approval is granted state by state, and because CLEC is a new legal designation, state regulators are still unfamiliar about how to deal with applicants.

That adds up to delay for widespread DSL services that challenge current data prices, according to Beth Gage, senior broadband analyst for TeleChoice, Inc., a telecommunications consulting firm in Verona, N.J. "I would not expect to see a significant impact for 12 to 24 months," Gage said. ■

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BROADBAND WANNABES

Competitive local exchange carriers specializing in digital subscriber line services — DSL CLECs — are about ready to roll. Here's a few:

Company	Based	Description
Network Access Solutions	Herndon, Va.	CLEC in Bell Atlantic region; focused on corporate users and Internet service providers.
Vitts	Manchester, N.H.	Offering data services in New Hampshire with plans to expland into all of New England and New York; may partner for national reach.
Dakota Systems	Milwaukee	CLEC status in 26 states; may partner for national reach.
North Point Communications	San Francisco	Built around a core of people who developed MFS Communications' DSL plans.
Covad Communications	Santa Clara, Calif.	CLEC status in California and five other states; national plans.

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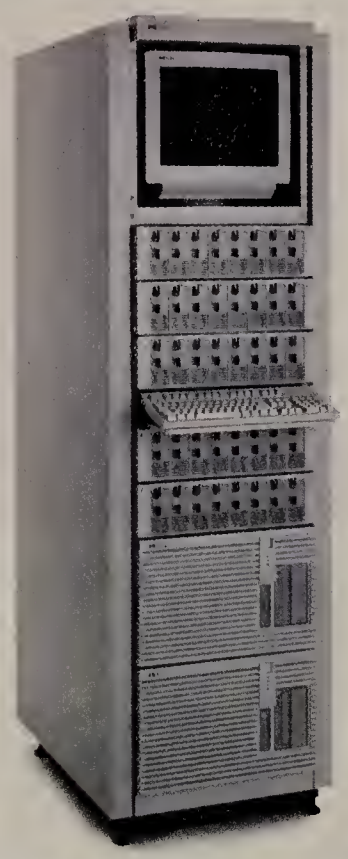

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Briefs

■ **Sharp Electronics Corp.** *has announced a new line of* **handheld PCs** *that use Microsoft Corp.'s* **Windows CE 2.0** *lightweight operating system. Sharp's Mobilon computers feature color or monochrome screens, audio recording and a digital camera card option. The devices include built-in 33.6K/9.6K bit/sec modems for e-mail and fax connectivity.*

Sharp's *Windows CE-based Mobilon*

The Mobilon HC-4000, HC-4100 and HC-4500 units will be available by year-end and cost $600 to $900.

✆ Sharp: (800) 237-4277

■ **Banyan Systems, Inc.** *last week reported* **a quarterly profit** *for the first time in 18 months. The software company, which recently started to deliver products that integrate its StreetTalk directory service with Web technology, reported earnings of $769,000 for the quarter ended Sept. 30 on revenue of $18.8 million. This compares with a loss of $783,000 on revenue of $28.1 million for the comparable period last year.*

■ **Data General Corp.** *last week boosted its* **Windows NT server line** *with three new boxes geared for different spots in the enterprise. The entry-level AV 2150 has single or dual 266-MHz Pentium II processors, with a 512K-byte cache and up to 512M bytes of memory.*

The middle-tier AV 3650 has up to four 200-MHz Pentium Pro processors, each with up to 1M byte of Layer 2 cache and up to 4G bytes of memory. The high-end AV 6600 offers six 200-MHz Pentium Pro processors, each with up to 1M byte of Layer 2 cache, and up to 4G bytes of memory. The servers are priced at $3,500, $9,800 and $25,000, respectively.

✆ DG: (508) 898-5000

Tarantella lets Java clients tango with back-end apps

By Christine Burns

The Santa Cruz Operation, Inc. (SCO) this week will roll out Unix-based middleware that acts as a broker between back-end applications and any Java-enabled network computer (NC) or full-fledged PC.

Code-named Tarantella, the server operating system add-on provides centralized management of client access to LAN, enterprise and Internet applications.

Additionally, the system cuts down on the hassles of deploying application-specific client software and optimizes communication between Java clients and business-critical programs, company officials said.

Get more online:

- **An SCO white paper explaining Tarantella**
- **An audio primer about network computing**
- **An I-Kinetics white paper on using CORBA and Java for distributed applications**

www.nwfusion.com

In its first release, Tarantella will run on either an SCO Unix or Sun Microsystems, Inc. Solaris server sitting on the network between application servers and Java clients.

Tarantella comprises a set of emulation engines that run on the server and provide Java clients with access to all graphical- and character-based networked applications by downloading Java applets to the clients on an as-needed basis.

Protocol support

Tarantella supports a variety of network protocols that permit communication with back-end services whether they are speaking TCP/IP, NETBIOS or SNA. But to optimize network performance out to the clients, Tarantella employs SCO's Adaptive Internet Protocol, which can adapt to the connection characteristics and deliver performance tweaked to fit the application type and device.

The product streamlines the process of deploying comprehensive Web-to-host connectivity, said Brian Hodgson, a senior product manager at Computer Network Technology Corp. (CNT), of Maple Grove, Minn.

CNT manufactures Brixton Web Integrator, a suite of TN 3270 and TN 5250 emulators that provide Web-to-host access on a per-client basis. The company partnered with SCO to deliver a product that runs on top of Tarantella.

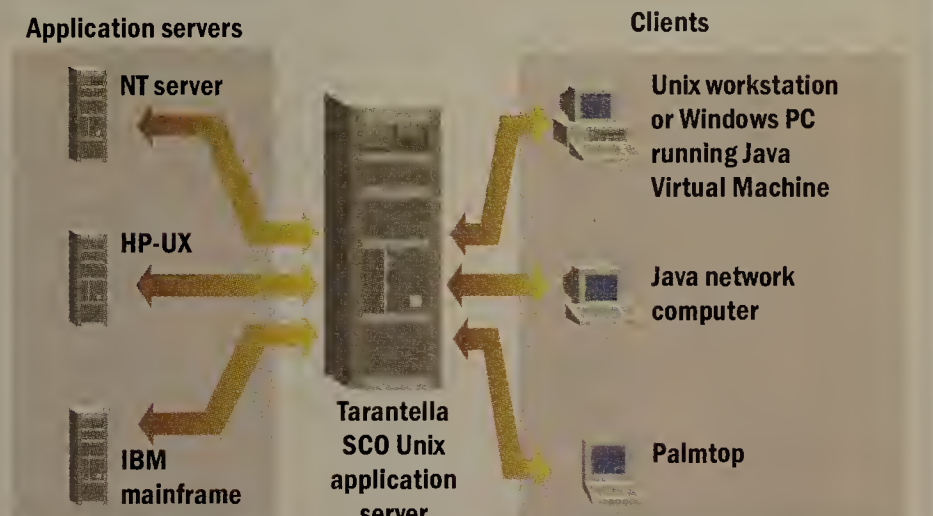
"This architecture lets us worry about optimizing the connection between the mainframe and the SCO server because Tarantella has the communication to the client all taken care of," Hodgson said.

For centralized management of client access, the Tarantella server stores information about all users and applications to which they have access. When a client connects to a Tarantella server, the end user is presented with a webtop, which is an HTML-based desktop interface based on the state information stored on the Unix box. By selecting from the icons on the webtop, an end user can invoke any of the server applications on the network.

✆ SCO: (408) 425-7222

SCO's Tarantella dances around disparate application platforms

SCO's universal application server – code-named Tarantella – allows any Java-enabled client to access any code-named application regardless of whether it resides on a Windows NT, Unix or mainframe back-end machine. Tarantella lets administrators centrally control all Java client access to diverse network resources.



Seagate tool keeps an eye on desktop apps

By Christine Burns

Seagate Software, Inc. has upgraded its Desktop Management Suite (DMS) to include new application metering and remote system inventory features.

The new features help automate two time-consuming tasks associated with maintaining distributed desktops.

The metering capabilities are supported in Seagate's new WinSMART module, a network operating system-independent product that can measure and enforce the usage of all licensed applications across heterogeneous networks.

While competing products meter applications running on network file servers, WinSMART allows administrators to meter software installed anywhere on a network, including an end user's local hard drive, said product manager Larry Cadlof. A back-end license manager running on any Windows 95 or NT machine coordinates metering among users' desktops.

WSBC Civil Engineers, Inc., of Houston, has been looking for this type of capability to help control application usage across its 50 NT workstations.

"Metering apps on the server just isn't what we need because most of our engineering programs run better on the desktop machines themselves," said Bill Fry, computer systems analyst with WSBC.

DMS 3.0 is available now and starts at $50 per node for less than 50 end users.

✆ Seagate: (800) 327-2232

Seagate upgrades desktop management

New features of Seagate's Desktop Management Suite 3.0 include:

- WinSMART software metering module
- WinLAND 4.0 for network inventory capabilities
- WinINSTALL 6.0 for software distribution
- Backup Exec for Windows NT 7.0 and Backup Exec for NetWare 7.5 for management
- Proxy 2.2 for remote control

WIRED WINDOWS

Take a tech support number

First of two parts.

As vendors cut back on the number of people taking phone calls, they are dropping their toll-free lines. The result is that the cost of tech support calls is becoming a significant budget item for many customers. What's worse, the quality of the technical support being offered has become less than satisfactory to most users.

Too often, the call you make turns into a learning experience for the tech support clerk, with you acting as the unpaid teacher. In fact, you're often paying for the privilege of educating the tech support representative.

Here's an actual exchange, as described by fellow writer Chris Locke (www.panix.com/clocke/EGR/):

I call up the manufacturer to ask why my new Pentium-II 266-MHz computer with 64M bytes of RAM is running out of system resources even when I have just a few apps open.

The first guy I got was very nice, but I had to walk him through starting the Win95 Resource Meter three times. He'd never heard of it.

When I asked about config.sys, autoexec.bat and registry settings, he admitted he was way out of his depth.

I asked to talk to someone a bit more experienced. He comes back and says I can call this other pay-by-the-incident number. I'm supposed to get a year of free on-site service, I explain. He says he'll get a supervisor. I wait. The next thing I hear is the US WEST operator: 'If you'd like to make a call . . .'

So I call back, go through the obligatory 20-minute wait, and get the next guy. Guy 2 is also clueless but not as nice as Guy 1. He asks if I'm running more than one program at once, then he gives a lecture about FAT-16 vs. FAT-32 and has me run fdisk. I do all that, then ask him what that might have to do with my problem. 'Oh nothing,' he says.

Dave Kearns

He also tells me that anything over 24M bytes of RAM is unused by Win95 [Kearns note: Guy 2, of course, is wrong].

I ask him for HIS supervisor, and Guy 3 gets on the line. He says that every Internet service provider offers different winsock.dll files [Kearns note: No, they don't].

I ask him why he thinks so and, as I suspect, he has no basis for making this claim, nor even a halfway reasonable guess as to why my Internet connection would bleed off system resources.

He then determines that I'm using Microsoft's Internet Explorer 3.02 and does his AHA! number again as if I'm some sort of total idiot. You need Version 3.03 he tells me. [Kearns note: There is no Version 3.03].

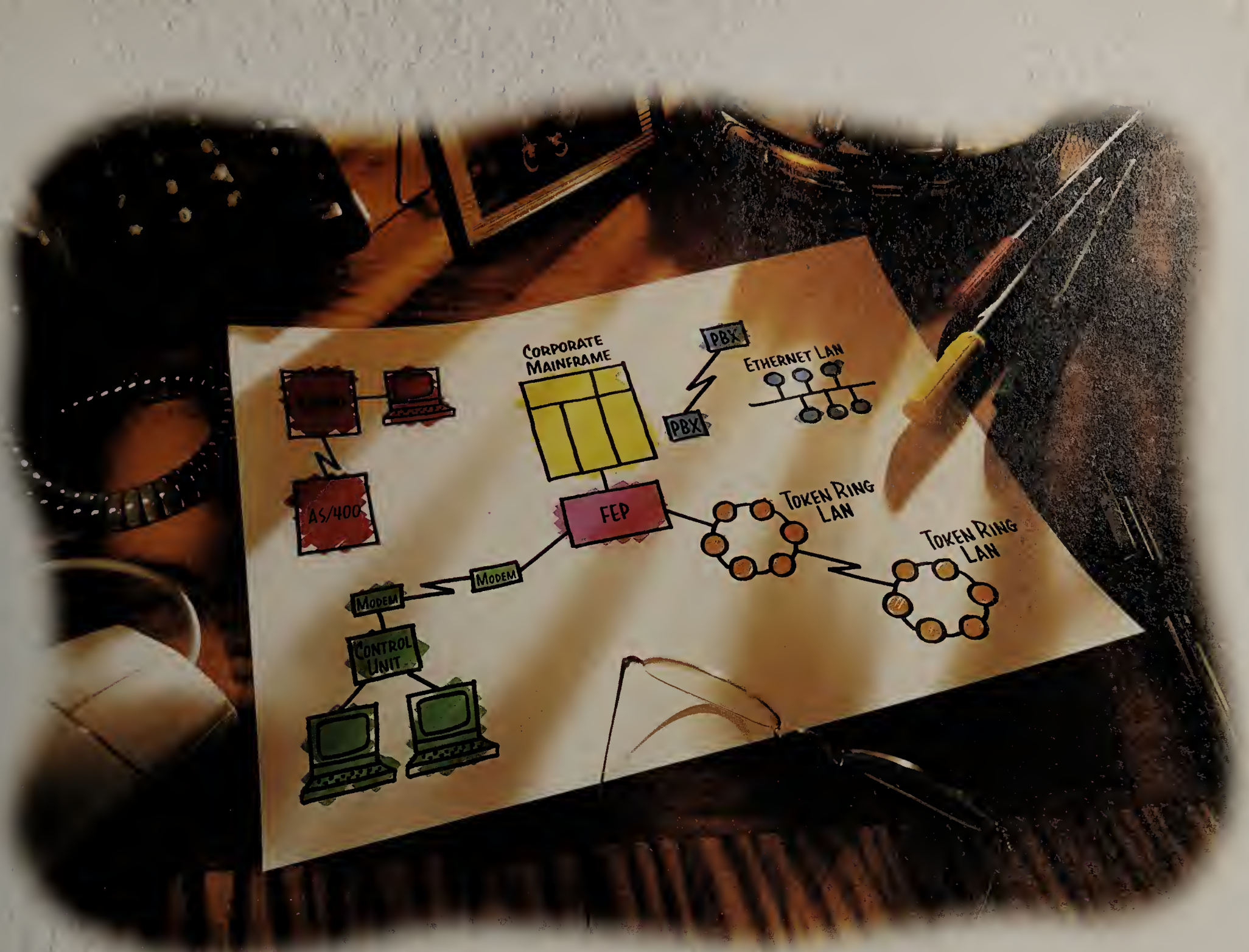
The sad ending to this story is that Chris still is looking for a solution to his problem.

Next week, I'll tell you about some companies with good tech support and suggest other ways to solve your problems without running up huge phone bills.

Kearns, a former network administrator, is a freelance writer and consultant in Austin, Texas. He can be reached at wired@vquill.com.

Tip of the week

Miralink Corp., of Salt Lake City, has released Alert for Windows NT and NLMAlert for NetWare/IntranetWare. The products essentially do the same thing: Take messages that normally only appear on the server's console and let you monitor them from standard network management consoles. You can download 30-day trial versions from www.miralink.com.



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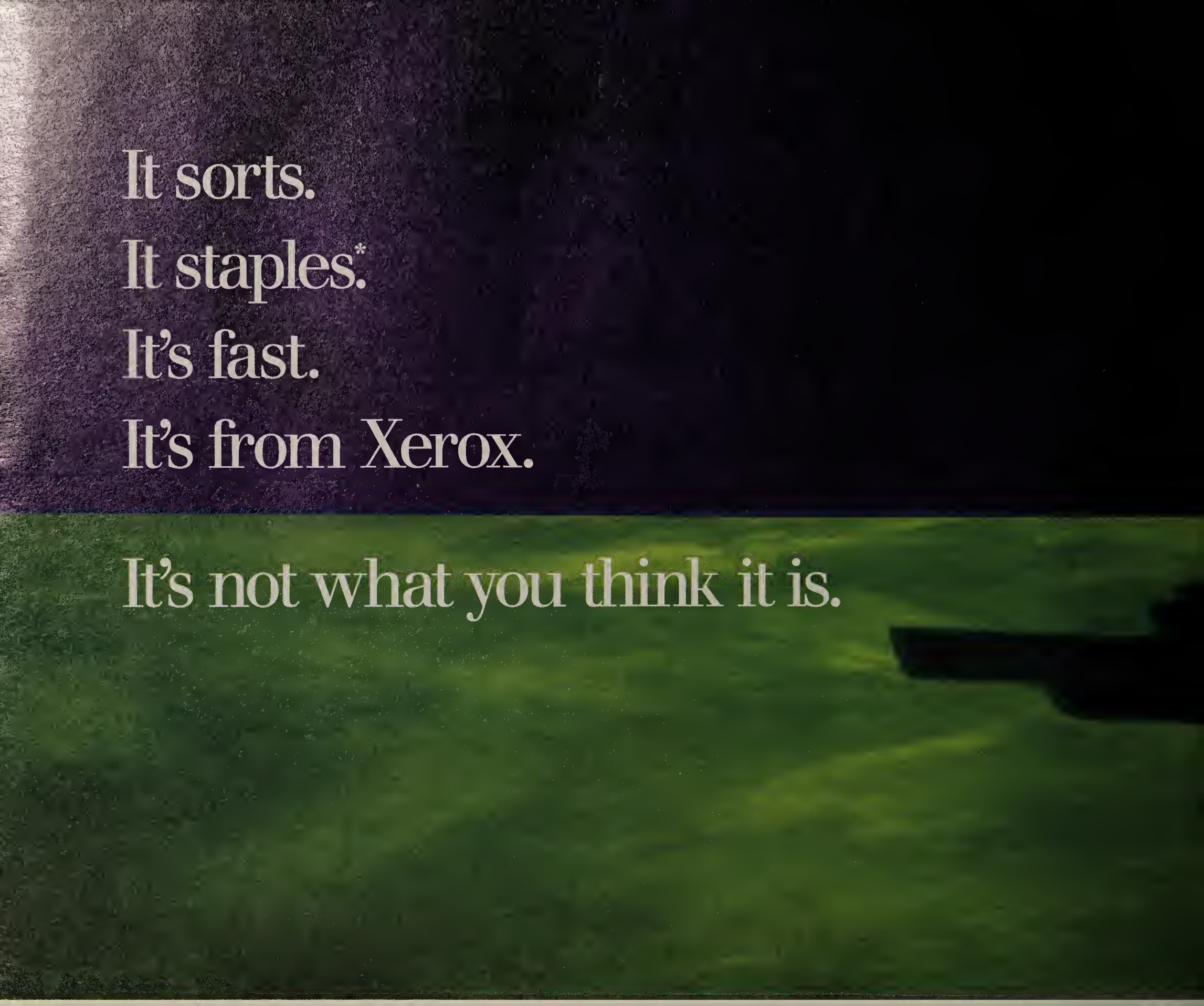

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SPECIAL FOCUS

Hubs and switches

Intel makes inroads in the LAN

By Jodi Daniels

Intel Corp. is in the process of changing its image of being mainly a processor maker. The chip king this year has made a serious push in the network market by sinking more than $125 million into acquisitions and investments as well as partnering with fellow titans such as Cisco Systems, Inc. and Compaq Computer Corp. Intel's goal is for customers to think of the company not just when it comes to chips, but also when it comes to hubs, switches and network interface cards (NIC).

"Intel probably sees networking as the No. 1 way to build business outside of its core processor business," says Greg Lang, business unit manager for network infrastructure operation in Intel's network product division. "Intel's network products division started up in 1990, but it wasn't until recently that this area became strategic for us."

Some industry observers say they initially did not take Intel seriously in the network arena.

"When Intel started dropping prices [on NICs and hubs], people thought the company would just spark the industry and then back out of the market," says Diane Myers, senior analyst at In-Stat, Inc., a consulting firm in Scottsdale, Ariz. "But you can tell from their acquisition strategy that Intel is in this [network infrastructure market] to stay."

Just ask Intel's competitors in the LAN workgroup market.

"Clearly, anything Intel does relative to desktops is important," said John Hart, 3Com Corp. senior vice president and chief technical officer, in a recent interview. "So we're certainly watching them."

Intel invasion

Suddenly, Intel has become a thorn in the side of 3Com and Bay Networks, Inc., both of which are going hard after the workgroup market.

"If you talk to anyone from 3Com or Bay, they are very cognizant of what's going on with Intel," Myers says. "They probably would rather not worry about Intel, especially when [3Com and Bay] are also trying to focus on the high end of the market."

But Intel's network products division — which reported revenue of $500 million last year — already has its sights set solely on the workgroup market and has made some significant inroads.

For example, Intel was second only to 3Com in Fast Ethernet NIC market share for the second quarter, with 3Com garnering 42.7% and Intel capturing 33.6%, according to In-Stat. This compares with Intel's 29.3% share and 3Com's 50% share in the previous quarter.

But Intel has been less successful on the hub and switch front, one analyst says.

"Intel's presence in the networking space is all pretty much on the NIC side at this point in terms of significant market share," says Esmerelda Silva, an analyst at International Data Corp., a market research firm in Framingham, Mass. "Within the hub and switch areas, they are obviously plugging along as a second-tier vendor."

Intel took a backseat to 3Com in Fast Ethernet hub sales in the second quarter with 11% of the market. 3Com still is the undisputed leader with 40% of the market share, according to In-Stat. But IDC's numbers show that Intel was the third-largest player in the shared 100Base-T market segment with a 12% share. 3Com led the market with a 33% share, followed by Asante Technologies, Inc. with 13%, Intel and then Bay, which earned an 11% share.

Product focus

On the switch front, Intel does not really show up yet in market share reports. But that may change because Intel is pushing hard in the LAN switch area.

For instance, Intel has an OEM agreement with NBase Communications for its 10M/100M bit/sec Ethernet switch, which has been shipping since the second quarter with Layer 3 capabilities.

"We're actually a very early player in the Layer 3 game," Lang says. "We plan to expand those routing functions across the rest of the relevant portions of our product line — such as segment and backbone switches — next month."

Earlier this year, Intel acquired Case Technology, a Scandinavian maker of switches and routers, to help bolster its product portfolio. The first fruits of the deal — including new switch products — will be rolled out by year-end.

"They are a company that a lot of people didn't know about, but they actually have some great Layer 3 and Fast Ethernet switch technology," Silva says.

But she says even with the Case purchase, she wouldn't be surprised if Intel is looking at other switch acquisition opportunities.

Intel also stepped up its router offerings when it recently rolled out a software upgrade for its Express Routers that allows customers to create virtual private networks over the Internet.

"We've really made a splash in the small, low-end router space," Lang says. "Before our product came out, there was nothing comparable available for less than $5,000. Our product is less than $1,500."

And that's not the first time Intel has had an impact on industry pricing.

"Intel really drove down 10/100 NIC pricing when they dropped their prices back in February, and everyone else was forced to line up and match their price or be left behind," Myers says. "That helped the market really take off above and beyond anyone's expectations. The same thing happened on the hub side when Intel dropped the price of their 10/100 device to $100 per port."

LAN on the motherboard

Another key area for Intel will be integration of the LAN on the motherboard.

"PC vendors are going to be delivering more of the network connections in their box as part of the base unit," Lang says. "In fact, nine out of the top 10 PC OEMs are already shipping with Intel Ethernet technology."

Lang predicts that more than 50% of the network connections that ship next year will come from PCs that have a preinstalled LAN on the motherboard or an NIC.

Unlike some of its competitors that are focused on the workgroup segment on up the network ladder to the enterprise customer, Intel started at the workgroup level and is working its way down to the small office/home office (SOHO) market.

That's what the recent Dayna Communications, Inc. acquisition was all about, Lang says. Intel was particularly interested in Dayna's NetCenter line of plug-and-play switches, hubs and routers designed for the SOHO market.

"Intel has great brand-name recognition, which goes a long way in trying to become a major player in networking, particularly in the low-end SOHO market," Silva says. "That market is all about brand-name recognition and Intel's name is up there with Coke, which makes them a very attractive vendor."

It certainly does, which is why industry analysts plan to keep Intel right smack dab in the middle of their radar screens. ■

Intel infiltrates the LAN

This has been a big networking year for Intel. Here's a list of the key acquisitions and partnerships Intel made just in 1997 to better position itself in the LAN workgroup market.

January

- Announced $72 million acquisition of Case Technology, a switch and router vendor.
- Invested $52 million for a 12% interest in Xircom, a maker of mobile communications products.
- Announced OEM agreement with NBase for its 10M/100M bit/sec Ethernet switch.

April

- Partnered with Cisco for Gigabit Ethernet technology.

September

- Announced acquisition of small business network player Dayna Communications for an undisclosed sum.
- Partnered with Compaq to jointly develop and market Gigabit Ethernet, xDSL and remote access server products.

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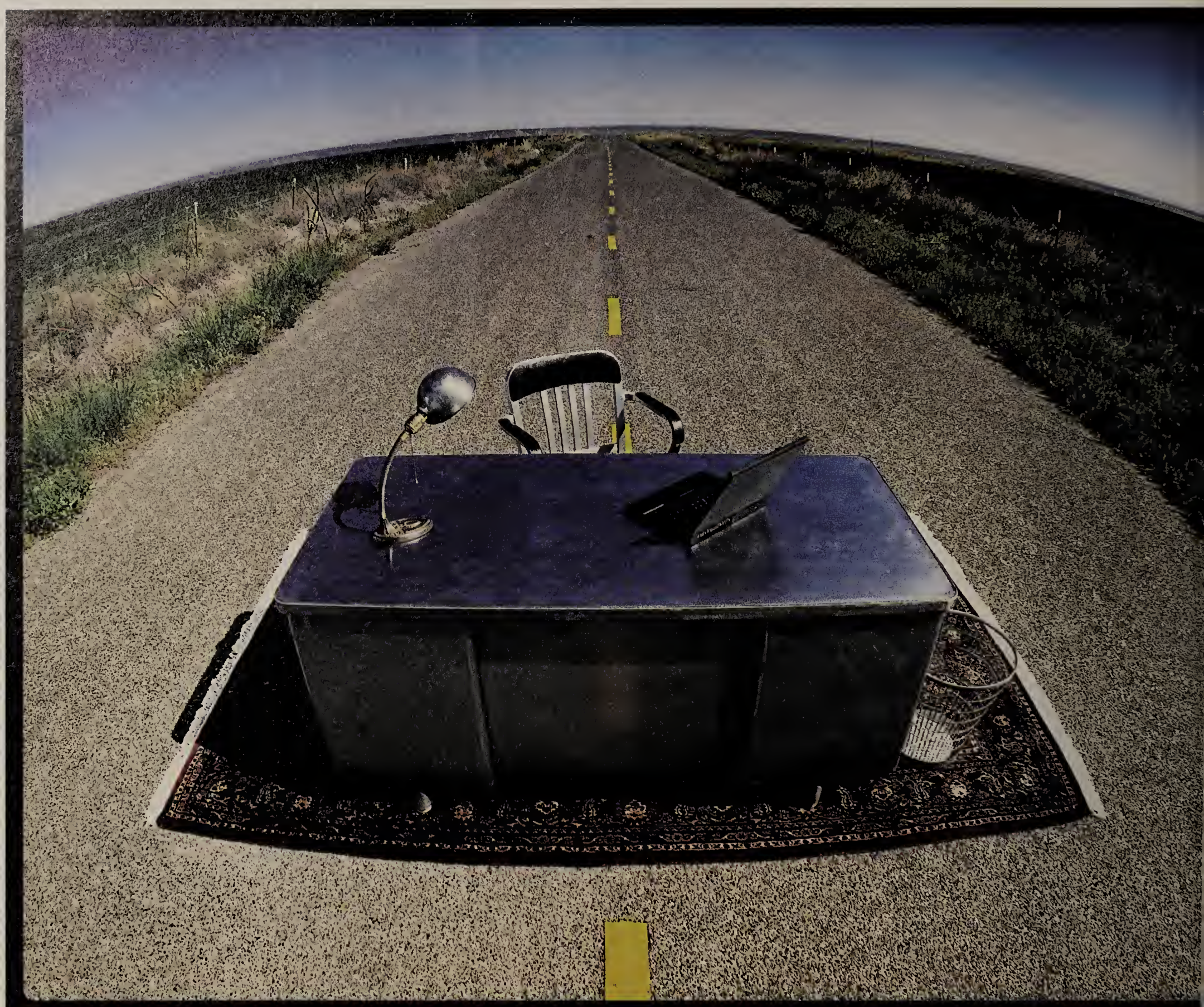

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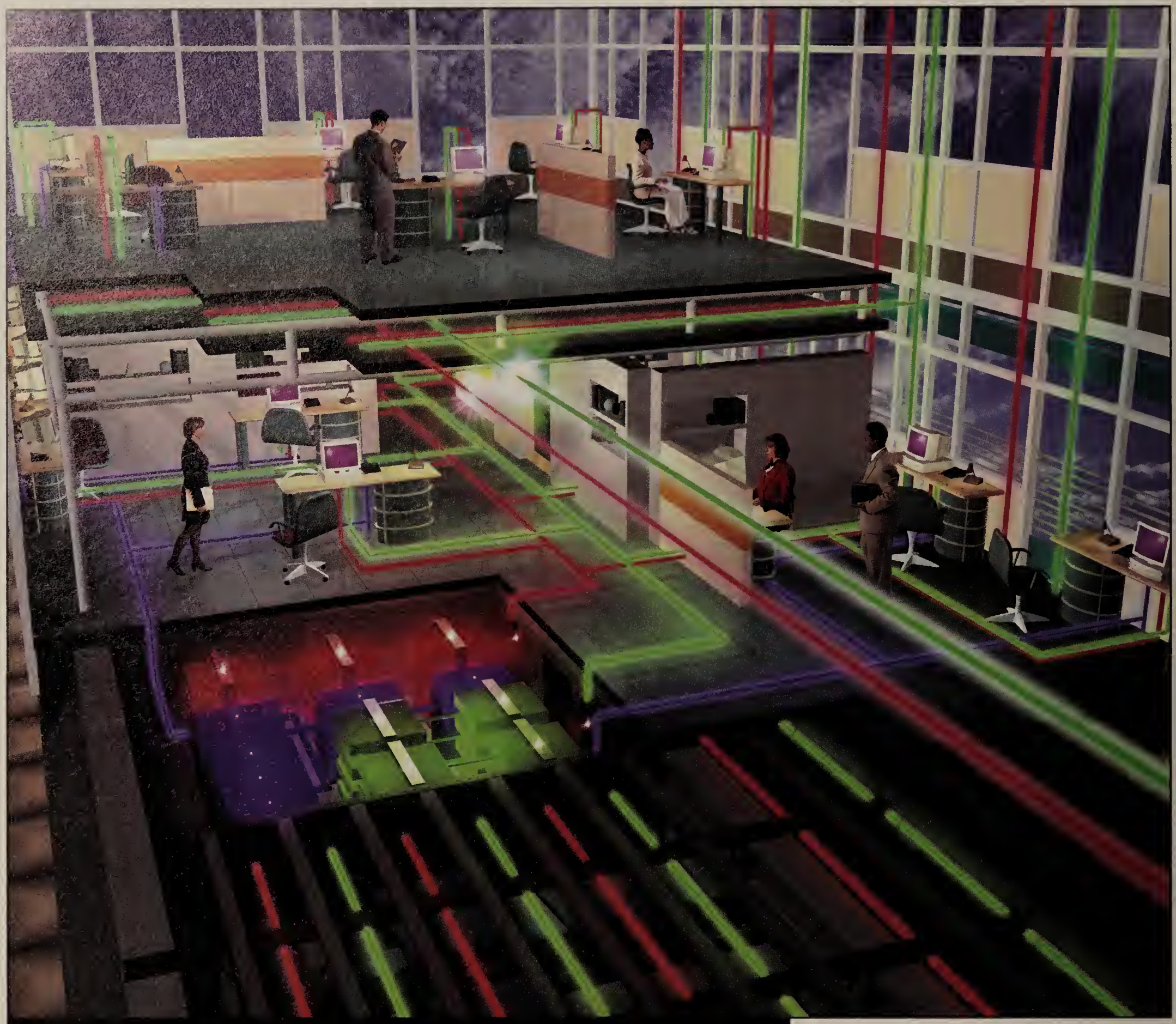

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Briefs

■ **Sterling Commerce, Inc.,** *this week announced* **Connect:Remote** *client and server software that compresses data over dial-up connections, logs file transfers and automatically performs checks for corrupted files. Sterling also introduced Connect:Mailbox 3.1 for Unix, a data repository where users can leave or pick up data regardless of whether the software is installed at both ends of the remote connection.*

✆ Sterling: (800) 311-9775

■ **IBM** *announced* **TXSeries middleware** *that allows users to conduct electronic commerce transactions on Unix and Windows NT platforms. The package integrates IBM's Distributed CICS, MQSeries, DSSeries and Lotus Domino GO Webserver with the Encina monitor. It has a security component with authentication and authorization controls. It will be available late this year.*

■ **Telmax Communications Corp.** *recently introduced XtendPlus, a* **telephone-line card** *and customer premises termination device that supports simultaneous digital ISDN phone calls and analog phone calls over the same phone line. While it relies on carriers offering the service, it is designed to support expanded bandwidth to remote offices served by a single telephone line. It works at distances up to 25,000 feet.*

✆ Telmax: (510) 440-8680

■ **Interworks Systems, Inc.** *recently introduced PipeLive client and server software that supports* **interaction** *between remote users and centrally located personnel* **via a Web browser.** *The Java-based software lets remote users equipped with Web browsers that support Java and Marimba channel technology tap into the central-site Web server, where they can access data or communicate with specific users at the central office. PipeLive costs $495 for server software and five central-site user licenses.*

✆ Interworks: (516) 424-9757

Cisco tightens Internet security

By Jim Duffy

In an effort to beef up Internet and intranet security, Cisco Systems, Inc. last week unveiled a new addition to its 1600 line of remote access routers and showed off enhanced firewall software.

The new products are aimed at remote users who are relying more and more on the Internet and deregulated telecommunications services for business-critical applications, such as electronic commerce and customer support. With this reliance comes susceptibility to unauthorized network access, virus-ridden packets and other Internet evils.

The 1605-R is a dual-LAN, single-WAN router that sports two Ethernet attachments and a slot to house one of an array of WAN interface cards. The cards can be synchronous/asynchronous serial, two flavors of ISDN Basic Rate Interface (BRI) or a 56K/64K bit/sec four-wire DSU/CSU.

Cisco user @Home chose the 1605-R over Cisco's higher-end 2500 routers because it has the same features at a better price, said Steve Reichgut, product manager for access service at @Home's @Work division.

"The other thing that we liked about the 1605 was that it's much more modular, so it gave us flexibility down the road," Reichgut said.

The 1605-R is available now and costs $1,495. The WAN card is an added cost, starting at $400.

The security features of the 1605-R come from an enhanced version of Cisco IOS software that is integrated in the router. Cisco IOS now includes the Firewall feature set, which is software designed specifically for small and remote offices that access the Internet regularly.

The Firewall feature set performs context-based access control, which allows or blocks access based on the particular application, such as those using the H.323, SQLnet or Real Audio protocols.

It also features Java applet blocking to prevent the downloading of malicious applets, enhanced denial-of-service protection, real-time alerts of attacks or access violations, and a TCP/User Diagram Protocol transaction log to notify administrators of unauthorized activity or bandwidth usage.

Reichgut is not using the Firewall feature set because the company wants to give the software a thorough investigation before injecting it into its network.

Cisco's 1605-R router *is based on the same remote access features as the 1600 shown here.*

The Firewall feature set also runs on Cisco's 2500 series routers.

It costs $700 for the 1600 series and $1,200 for the 2500. It will be available in the first quarter of 1998.

✆ Cisco: (408) 526-4000

Bay adds IP Service products

By James Niccolai
Paris

Bay Networks, Inc. last week announced IP Services, a set of technologies and products aimed at helping businesses integrate new IP-based applications with traditional network applications.

"IP Services is a cornerstone of Bay's Adaptive Networking architecture, a solution for building networks that can detect and adapt to changes in network traffic types, volumes and requirements," said Kelly McGovern, Bay's vice president of Internet/telecommunications marketing.

IP Services will be rolled out in three phases, beginning immediately with Enabling Services, which allow customers to offer basic services such as directory/policy, progressive traffic management, security and virtual private networks (VPN). Enabling Services will be followed by Application Services, which allow customers to offer support for multimedia and voice/fax over IP. Internetworking Services will then be rolled out, including PC LAN, IBM SNA and IP encapsulation capabilities to facilitate migration to an IP-optimized network, officials said. Bay did not offer a timetable for the release of the two upcoming services.

Unveiled at the NetWorld+ Interop 97 show here, Enabling Services draws on Bay's acquisition in April of Isotro Network Management, Inc., developer of the NetID IP addressing management software.

Also announced was an upgrade to Bay's router services suite. BayRS Version 12.0 will address customer concerns about IP address management and network unification, network bandwidth prioritization and mass data distribution, company officials said.

Bay also said it has partnered with VPNet Technologies, Inc. to offer the BaySecure VPN Series 500 product family, a turnkey suite for deploying and managing secure, high-performance VPNs. The suite includes standards-based WAN and LAN security devices, remote access client software and network management tools.

The Bay VPN Series 500 product family is slated for availability in November. The list price starts at $3,995 or $4,995 for a stand-alone version, company officials said.

VPN Secure Client is priced at $99, and VPN Secure Manager is priced at $3,995.

✆ Bay: (408) 988-2400

Niccolai is a correspondent with IDG News Service's San Francisco bureau.

Bay boosts IP options

Bay Networks, Inc. recently announced the Access Communications Node (ACN) product line, designed to aid companies migrating from X.25 and other legacy systems to more contemporary IP-optimized networks.

The product line, which Bay produced in cooperation with ECI Telematics International, Inc., of Fort Lauderdale, Fla., supports the X.25 protocol as well as BX.25, asynchronous, Binary Synchronous Communications, SNA/Synchronous Data Link Control, ISDN, IP, PPP, SLIP, Open Systems Interconnection, frame relay and ATM standards.

The ACN line consists of the Model 5394 ACN module for Bay's System 5000 switch and three stand-alone products: the ACN500, ACN200 and ACN100. The devices can be deployed as central office concentrators by service providers, as customer premises equipment or as user access and switching equipment within private data networks, Bay said.

The 5394 module supports 24 synchronous or asynchronous ports running at 64K bit/sec or 115K bit/sec, respectively. It also features two T-1/E-1 WAN ports and dual integral DSUs/CSUs.

The products will be available later this year. Pricing for the ACN500 will start at $17,450, the ACN200 at $7,650 and the ACN100 at $2,850. The 5394 ACN module will be available in early 1998. Pricing will begin at $17,995.

–Kathleen Ohlson

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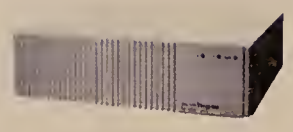

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Briefs

■ **Siemens Business Communication Systems, Inc.** *this week is expected to announce it is integrating Vienna Systems Corp.'s Vienna.way* **voice-over-IP** *technology into Siemens' Telephony Internet Server (TIS). Siemens will use Vienna's IP telephony software in its TIS device to support voice and real-time fax. The device will be used in AimQuest Corp.'s Global Reach Internet Communications consortium network.*

Siemens this year inked a deal with AimQuest to provide the firm with products that also will let customers on AimQuest's network make calls and send faxes.

■ **Clarent Corp.,** *of Redwood City, Calif., has introduced Clarent Gateway 2.0, the latest version of its* **voice-over-IP** *device. Clarent Gateway 2.0 supports real-time fax, SNMP and Signaling System 7. It is slated for availability next month for $2,495 to $3,995, depending on configuration.*

✆ Clarent: (650) 306-7511

■ *Long-distance carrier* **LCI International, Inc.** *has purchased a position in a new* **1,925-mile fiber-optic cable** *between Washington, D.C. and Dallas. Construction of the cable is underway by Williams Communications Group, Inc. LCI expects to move traffic to it in the second quarter of 1998.*

■ **Digex Inc.,** *the Internet service provider subsidiary of Intermedia Communications Co., last week announced it is using* **Xedia Corp.'s bandwidth management devices** *for its advanced Web hosting services.*

Digex is deploying Xedia's Access Point 100 devices to support Web site management services and to regulate and control bandwidth for its Complex Web Site Management customers.

✆ Xedia: (800) 989-3342; Digex: (301) 847-5000

Voice and packet data ride same local T-1 link

By Tim Greene

Did you think you would ever see the day when local carriers would offer up ways to consolidate access trunks?

Perhaps in response to competition, or the threat thereof, a few local providers are offering single-access trunks that support multiple services.

GTE Corp. has introduced a hybrid private line/packet switched access service called FlexGrow. Competitive local exchange carrier Intermedia Communications, Inc. also has announced a similar offering called SingleT. Ameritech Corp. said it may follow suit.

Traditionally, long-distance carriers looking to lure customers into buying dedicated links into their networks have offered these integrated access services, according to John Coons, director of broadband for Dataquest, Inc., in San Jose, Calif. With dedicated access, long-haul carriers can avoid paying a 35% access fee to the local carrier, he said.

ONE-LINE ACCESS

GTE's and Intermedia Communications' new T-1 services for circuit- and packet-switched networks:

- Combine circuit-switched voice and packet data on a single T-1 line.
- Reduce the total need for dedicated lines.
- Can be supported with leased equipment.

But now, traditional local carriers are offering hybrid access as a way to keep customers from drifting away to rivals, Coons said. The offerings let customers use some T-1 channels to access circuit-switched services, such as voice, and the rest of the channels to access packet switched services such as frame relay.

This can save money in two ways. First, it allows consolidation of traffic on fewer lines. Second, packet switching typically is more efficient than circuit switching for data.

GTE's FlexGrow service will be rolled out starting next month in Texas, pending approval of the Texas Public Utility Commission. In the first quarter of next year FlexGrow will expand to California, Florida, Hawaii, North Carolina and Pennsylvania as each state approves the service.

FlexGrow is priced depending on configuration, according to GTE product manager Steven Decaney. As an example, he said a single T-1 link split to handle 15 64K bit/sec voice channels and four 56K bit/sec frame relay trunks would cost about $900, pending tariff approval. The price would include managing the customer premise hardware and frame relay conversion of LAN traffic.

Users can let GTE install and maintain the necessary hardware or buy their own gear. GTE supplies Premisys Communications, Inc. IMACS concentrators, but users could install equipment from companies such as Mariposa Technologies, Inc., Newbridge Networks, Inc. and Vina Technologies, Inc., according to Decaney.

Intermedia calls its service SingleTand offers the same functionality as the GTE offering. Intermedia supports SingleT with Vina technology and can bundle the service with Internet access. ■

CAIS offering: Internet telephony with a private twist

By Denise Pappalardo

Internet telephony has an image of being cheap and not altogether reliable. But a new service from Networks Telephony Corp. (NTC) and CAIS Internet aims to keep the price down and reliability up.

NTC has developed NTC-Voice, a voice service that primarily runs over a data network but is available only through an Internet service provider. CAIS Internet, a CGX Communications, Inc. company, is the first ISP to offer the service.

The service lets users make outgoing voice calls from their PCs to traditional telephones around the world over a single Internet connection. While us-ers can do this today with other Internet telephony services and products, NTC's service carries voice calls on Infonet Service Corp.'s data network. NTC, of El Segundo, Calif., is an Infonet spinoff (*NW,* Sept. 29, page 26).

The alternative voice service comes with a nice price tag. Domestic NTC calls regularly are 8 cents per minute, but NTC is charging 5 cents per minute until next month.

NTC's international rates are half of what the major domestic carriers are charging in some cases.

For example, to call Russia from the U.S. using NTC's service, users pay 77 cents per minute compared with an average of $1.60 per minute rate with AT&T, MCI Communications Corp. or Sprint Corp. Calls to Germany reflect a similar cost savings. The NTC call rate is 70 cents per minute, while the other carriers average about $1.39 per minute.

CAIS Internet access customers can sign up for the NTCVoice service by going to CAIS' or NTC's Website.

The voice call travels as far as possible on Infonet's network, which reaches 37 countries. The call then hits an NTC Phone Bridge, where it is translated back to analog so it can travel over a traditional telephone network.

One analyst believes users will notice the difference. "(NTC-Voice customers) will not be subjected to the variable latency problems you find on the Internet," said Mark Winther, group vice president of telecommunications at International Data Corp., a Framingham, Mass.-based research firm.

Users can set up individual accounts using a credit card or set up a business account under which users will receive monthly bills from NTC.

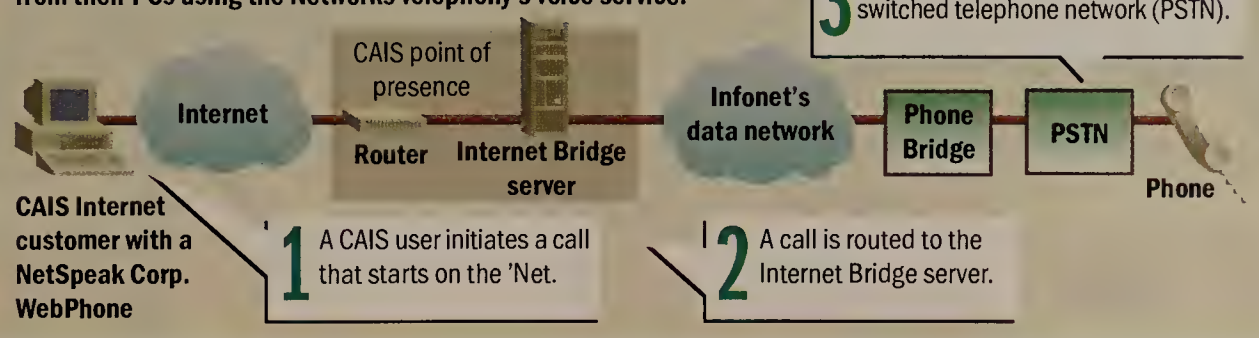
While CAIS customers only pay a fee to NTC when they use the service, CAIS shares in a percentage of the profit, said Evans Anderson, vice president and general manager at CAIS Internet.

But CAIS Internet access customers do not pay any additional fees to the ISP.

CAIS Internet: (703) 448-4470; NTC: (310) 563-3900

Telephony options

CAIS Internet access customers can call any standard telephone from their PCs using the Networks Telephony's voice service.



WAN MONITOR

Help wanted: Implementing unification through IP

The idea of a unifying protocol to be deployed from the desktop through the LAN and WAN that is able to carry all types of traffic including voice, data, fax, imaging and video used to conjure up images of ATM.

Though designed from the ground up to bring unification, ATM turned out to be a complex, unwieldy and expensive solution compared with IP.

But IP now is the golden child of a networked generation. That's because it is a lot easier to change your WAN protocol and service than it is to change all your applications and LAN infrastructure. IP's popularity also is proof that the winner in marketing battles isn't the best technology — it's the one that is most practical, most often deployed, most cost-effective and easiest to understand and use. IP was designed for delay-tolerant applications, but with modifications, it can carry isochronous applications. Whether it's the best or most elegant technology for this role is a moot point. Everyone wants to use it. Still, IP is far from ready to take on this unification role for the enterprise net.

We have a long way to go to bring determinism, predictability, reliability and accountability to IP for extranet-, intranet- and Internet-based applications. Private net implementations may push the envelope faster than the public 'Net for solving these problems.

Daniel Briere and Christine Heckart

Intranets will be the breeding ground for new IP offerings that will make it possible to run a mix of mission-critical applications over IP. Professional services programs such as Netscape's new effort to help companies implement complete Web-based architectures will speed the maturation process.

Many companies know they could implement an application more effectively using an intranet but lack the resources to make it happen quickly. The industry is ascending a learning curve for how to redesign and redeploy existing and new applications on IP-based solutions using Web technologies. Companies such as Microsoft, Sun, Netscape and Oracle need to assume IP leadership roles in ways not before imagined. Carriers have never been good at understanding end-user applications and deployment problems. And they're not likely to start now.

Some carrier initiatives like US WEST's !nterprise's new trader network service for government requests for proposal are ways for users to outsource the development of their own Web-based solutions and use a service instead. But service providers aren't focusing efforts on developing these extranet services for communities of interest, which means we're back at square one. The responsibility sits with the end user or the software developers.

If we want to reach a networked economy based on a unified IP infrastructure and anywhere, all-the-time communications anytime soon, we'll need leadership programs like Netscape's.

Briere is president and Heckart is vice president at TeleChoice, Inc., a consultancy in Verona, N.J. They can be reached at dbriere@telechoice.com and checkart@ telechoice.com.

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Directed and presented by Mark Miller

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However, if IP is revised, other protocols must be changed as well. The significance of this protocol revision extends to LANs, MAN and WAN transmission systems, as well as the upper layer protocols and operating systems.

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8. Learn how to strategically plan your transition from IPv4 to IPv6, and steps that should be taken at critical points along the way.
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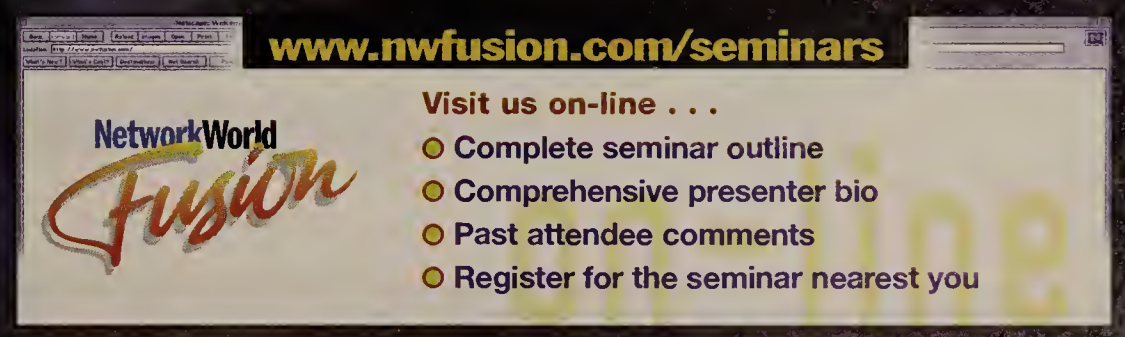

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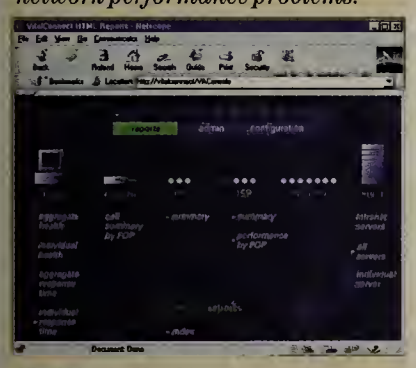
Briefs

■ **Milkyway Networks Corp.,** *of Ottawa, today will announce it is expanding beyond the Unix-based firewall market with its first* **firewall for Windows NT.** *Company officials said SecurIT Firewall 4.1 is designed to plug "six known security holes" in NT's TCP/IP stack. The new NT product features network address translation that secures private networks from the Internet. SecurIT Firewall 4.1 is available now and costs $1,900 to $14,500.*

✆ Milkyway: (800) 206-0922

■ **VitalSigns Software, Inc.,** *of Santa Clara, Calif., has unveiled two products designed to help companies detect and solve network performance problems.*



VitalSign's *VitalAnalysis tool*

VitalHelp *is a fault monitoring and remote diagnostic tool for help desks that detects, correlates and prioritizes end users' network problems and enables help desk staff to perform remote diagnostics.* **VitalAnalysis** *is a server-side reporting tool that analyzes individual 'Net usage among company employees. The VitalAnalysis server and 100 agents are available now for $9,995. VitalHelp will ship in December for about $10,000.*

✆ VitalSigns: (888) 884-8259.

■ **Maximizer Technologies Inc.,** *of Vancouver, has released Maximizer 97 for Windows 95. The new version of its* **contact management software** *adds e-mail capabilities, Internet integration and improved colaboration functions. The software costs $149.*

✆ Maximizer: (800) 804-6299

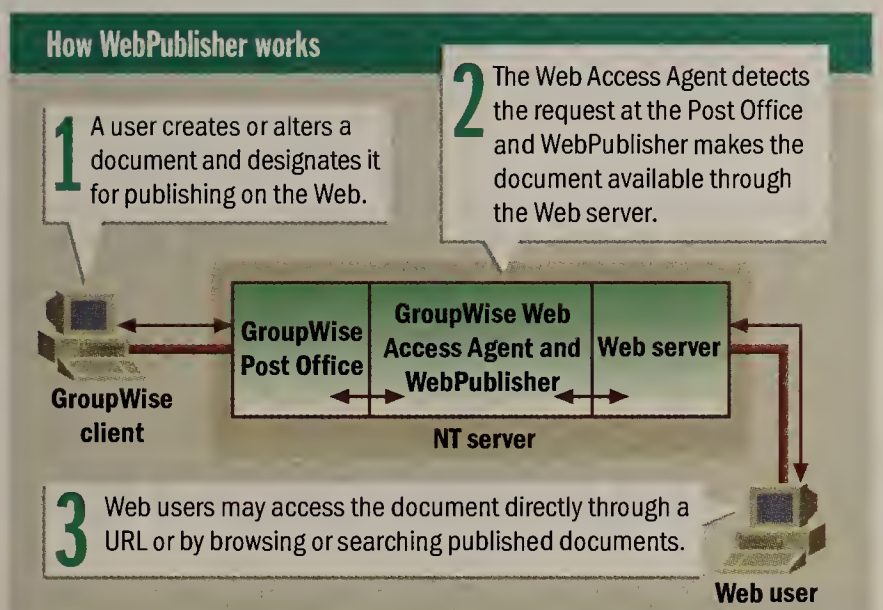
Novell finally delivers WebPublisher

GroupWise server add-on lets users publish documents directly to the World Wide Web.

By Paul McNamara
Provo, Utah

Five months late and an important platform short, Novell, Inc. last week delivered what it considers a key add-on to GroupWise called WebPublisher.

Formerly known as the Jefferson Project, WebPublisher is server-based HTML-conversion software that allows GroupWise users to publish just about any document to the World Wide Web. WebPublisher, which is part of the GroupWise Web Access Agent, acts as middleware between the GroupWise Post Office and a Web server.



WebPublisher's main attraction to network managers is it will spare Webmasters the chores of HTML editing and document version control while maintaining GroupWise's access and security features.

"What we do is take all of that tedious work right out of the loop," said Ed McGarr, vice president of marketing for Novell's Applications Division.

Analysts and customers see WebPublisher as an important new dimension for GroupWise. It may give Novell a boost in its ongoing struggle to remain competitive with fellow groupware leaders Lotus Development Corp., Microsoft Corp. and Netscape Communications Corp., they said.

"We will most likely use it for publishing informational bulletins, instructions, procedures and sample forms," said Travis Berkley, supervisor of LAN support services at the University of Kansas. "This lets the folks who know this information put it out there themselves without having to bother with the admin types and vice versa."

According to Ian Campbell, an analyst at International Data Corp., of Framingham, Mass., the ability to make changes to Web documents at the push of a button will be welcomed by GroupWise shops. "It really expands what GroupWise can do and offers new opportunities for users who want to take better advantage of the Web to disseminate information," Campbell said.

While praising the product overall, Berkley noted, "[On WebPublisher], "things are or-ganized rather flatly, [and it could use] some hierarchical structure to ordering the libraries."

The initial release of WebPublisher runs only on Windows NT. A version that supports Novell's IntranetWare will be released early next year, said Eldon Greenwood, director of product management.

In the long run, the delay should not hurt GroupWise and WebPublisher, Campbell said. The rollout will call attention to the fact that GroupWise runs on platforms other than IntranetWare, he said.

WebPublisher is available free until April via Novell's Web site at www.novell.com. Thereafter, it is expected to sell for $2,495 per server.

✆ Novell: (801) 222-6000

Get more info online: 4414

- A look at how Novell is integrating GroupWise with Internet standards
- A Novell white paper on its Java strategy

www.nwfusion.com

Net-It makes new document management push

By Chris Nerney

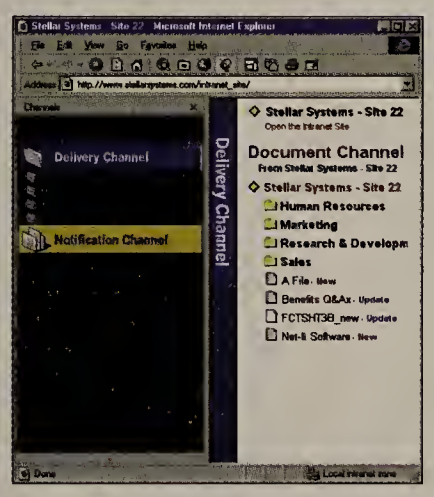
Four months after launching a product designed to allow document-sharing over intranets, start-up Net-It Software Corp. is introducing a version that takes advantage of push technology to deliver documents to desktops.

Net-It Central 2.0 can bring documents directly to end users via Netscape Communications Corp.'s Netcaster and Microsoft Corp.'s Channel Definition Format (CDF) push technologies, company officials said.

Net-It uses Docucast technology embedded in its Net-It Central server-side software to create and maintain Netcaster and CDF channels for Version 2.0 users. Docucast reads what kind of browser is being used on a desktop and then creates and maintains channels using the appropriate format — Netcaster or CDF.

Change the channel

Net-It Central 2.0 offers two types of channels. Notification channels send end users the name of any document or folder that has been updated, such as pricing or inventory information. Delivery channels send requested documents right to the desktop.



Net-It Central's Docucast *automatically maintains delivery channels for offline document viewing and notification channels to track site updates.*

Net-It Central was designed to give end users with any Java-enabled Web browser access to server-based Windows office documents, including spreadsheets, graphic presentations and business plans.

Net-It now is offering support for CentralTools, software modules that allow integration of third-party technologies such as version control and groupware.

Intermediary

Net-It Central 2.0 is "intermediate technology which stands between the more robust document management systems and the simpler content management systems," said Nathaniel Palmer, a senior consultant at The Delphi Group, Inc., of Boston. But the product's Java-based navigational features and its ability to "keep intact the inherent qualities of a document exceed what even higher-end document management systems offer," he said.

The software runs on a Web server or a Windows NT or 95 workstation that has Network File System or File Transfer Protocol access to the Web server.

Net-It Central 2.0 will be available beginning Oct. 28 from the company's Web site at www.netit.com. It is available in three versions that cost $1,995 to $6,995.

✆ Net-It: (415) 551-0600

JetForm pitches enterprise workflow pack

By Paul McNamara
Ottawa

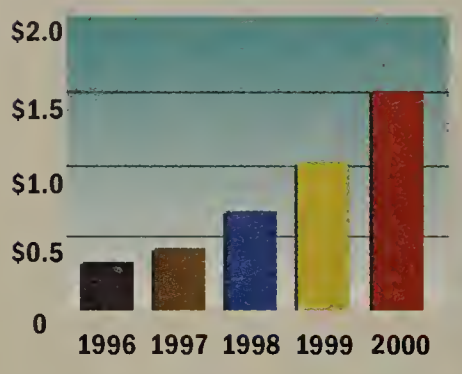
JetForm Corp. last week unveiled a "clientless" server product called InTempo that it contends will be the first to allow large corporations to deploy enterprisewide workflow without touching user desktops.

Within a single workflow process, InTempo will support HTML forms from a standard Web browser, Java forms from a browser or network computer and forms from JetForm's existing proprietary clients and third-party applications. The server-only software — designed to handle expense reports, requisition forms, human resources surveys and the like — runs on Windows NT and uses any major e-mail system for message transport.

Catching the workflow wave

Sales of products for automating the flow of expense reports, purchase orders and other documents across enterprise networks are expected to skyrocket over the next few years.

Workflow product revenue (in billions)



SOURCE: IDC, FRAMINGHAM, MASS.

Analysts and beta customers reacted positively to the JetForm technology.

"It really represents the first economical way to achieve enterprisewide workflow," said Gerry Murray, research manager at International Data Corp. in Framingham, Mass. "The largest obstacle to deploying this stuff on a truly enterprise basis has always been the client-side cost: If I have to pay $200 a head, I'm not rolling it out to 100,000 users."

Scheduled to ship early next year, InTempo will cost the average corporate or government customer "less than $100 per participant," according to JetForm. Smaller organizations will pay $20,000 for 100 participants and $75,000 for 500.

InTempo will compete with products such as Metro from Action Technologies, Inc., Ensemble from FileNet Corp. and Keyflow from KeyFile Corp.

Web-based workflow products such as InTempo are "the wave of the future," said Jack Napier, a project manager at Motorola Corp.'s Space and Systems Technology Group in Scottsdale, Ariz. Napier's users currently have access to 300 automated forms in a LAN-based environment featuring a wide mix of clients.

"We were looking for something that would give us a thin-client approach and get us away from desktop support," he said. "What we saw in [InTempo] was the ability to quickly turn out Java applets that communicate in a workflow environment."

Another beta tester, however, was less enthusiastic about InTempo's potential.

"We experimented with the browser technology, [but] pretty much nixed that idea because we were getting too many complaints from users [regarding compatibility and screen resolution issues]," said Cliff Lovas, E-communications team manager at Panasonic in Secaucus, N.J.

Moreover, ever-changing organizational structures preclude Panasonic from using the roles-based workflow capabilities of InTempo, Lovas said. "Workflow sounds so easy — it's a nice buzzword — but it's a bear to maintain," he said.

✆ JetForm: (613) 230-3676

'NET INSIDER

The Internet as the cause

The Oct. 20 issue of *Newsweek* contained an article that illustrates a common failure — or at least an error of commission — in the journalism biz.

The article covers the case of online columnist Matt Drudge. He is being sued for defamation of character by a couple that objected to Drudge reporting in his America Online-based column that there was wife-beating in the couple's background. When challenged, Drudge issued a retraction of the report, but when he refused to reveal the source of the original accusation, the aggrieved couple sued.

My column this week is not about what would seem to be just a normal case of the perils of a columnist believing everything he is told. Rather, it's about the tendency to make the Internet the focus of any story that might have some remote connection to the giant network of networks. In this case, *Newsweek* subtitled its story "A Beltway libel suit could make Internet history" and painted the case as some sort of a threat to freedom on the 'Net.

According to *Newsweek*, AOL hired Drudge (and advertised having done so) and paid him for his column. This seems to bear more than a glancing resemblance to my relationship to *Network World*. But if someone sued me and *Network World* over something I wrote in my column, would *Newsweek* write about the challenge to the paper-publishing biz?

Scott Bradner

Newsweek is not alone in being too quick to involve the Internet in a news story. In his Oct. 13 *Washington Post* column, John Schwartz told the story of Brian Poulsen, a 12-year-old boy who ran away to join a man who had sent him a bus ticket. Initial reports said that the two had met through an "Internet chat room."

This story was widely reported, generally with more than a touch of fear mongering about the impact of the Internet on us all. But as it later developed, the two had met on a telephone chat room and the Internet was not at all involved. The retractions were much harder to find than the original story.

What is it that makes the Internet an easy story? In part, it's because it is 1) new and 2) technology. Many people are fearful of new technology. There is a bit of Luddite in too many of us, and using the Internet card plays to our fears. But there seems to be more to the reaction than that.

One factor may be the speed at which the Internet came to dominate the mindscape. It was only three years ago that I was arguing in this column that the Internet was real and was not about to be replaced by something the telcos were going to drag in (*NW*, May 30, 1994, page 19). Look at us now!

But the biggest factor is the magic of it all. The Internet is this growing presence with no one in control, and it was born, it has been said, to withstand atomic attack. That's all too scary.

And too convenient. It is far easier for a reporter to put blame on the Internet than it is to find out what actually underlies the story. Too many reporters are taking the easy way out.

Disclaimer: Anything as old as Harvard has demonstrated that it knows how to do change (unless it is Plymouth Rock), but the above are my opinions.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@harvard.edu.

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Covering: Evolving Technologies and Standards

NUTTER S NETWORK HELP DESK

Ron Nutter, a Master Certified Novell Engineer and Groupware CNE in the Lexington, Ky., area, tracks down the answers to your questions. Call (800) 622-1108, Ext. 7476, or send your questions to rnutter@world.std.com.

How can I implement IP tunneling on NetWare 3.12 using the IPTunnel.NLM module?

Via NWFusion

After loading the TCP/IP module on the server and verifying that it is operating correctly, create the tunnel using the syntax: Load IPTunnel Peer=11.11.11.11 (replace 11.11.11.11 with an IP address of a NetWare server to which you want to establish a connection). Then bind IPX to the IPTunnel driver with a unique network number. Use this same network number on the remote NetWare server to which you are connecting.

Setting up IP tunneling can be difficult, but it will help to apply all the latest updates, including the latest TCP/IP driver (TCPN04.EXE), on all servers that will be participating in the tunneled network. Once everything is up and running, you should be able to do an SList and see the server on the remote end.

The IPTunnel driver is encapsulating IPX packets within IP wrappers and sending the packets to the destination addresses specified when you loaded the IPTunnel driver. This could potentially impact server performance, because additional work is needed at the sending and receiving ends. Depending on the number of servers and the flow of interserver traffic, you may want to consider upgrading to Novell's IntranetWare and invoking netWare IP.

IntranetWare does not yet support native IP, but Novell is working on it. By moving to IntranetWare, you have the option of staying with IPTunnel and leaving configuration management to INETCFG or changing over to NetWare IP.

One of the advantages of NetWare IP is that the Server Advertisement Protocol/Routing Information Protocol traffic drops from a 1-minute to a 5-minute interval. This can help regain bandwidth on the leased lines connecting the servers. This change will be more noticeable on circuits operating at sub-T-1 speeds such as 56K or 128K bit/sec.

Tuning DSL data rates for business users

By David Helfrich

Flexible bandwidth with a low entry cost is the driving idea behind the emerging multispeed digital subscriber line (DSL) technologies.

Most early DSL vendors focused their efforts on high-speed asymmetric DSL consumer services.

They reasoned that 6M/8M bit/sec downstream performance, with a limited 64K/640K bit/sec speed in the upstream direction, was the right DSL implementation to address the needs of the mass consumer market running video on demand, interactive gaming and other high bandwidth, asymmetric applications.

The most natural targets for DSL among the business community are those users who want LAN-like performance with more bandwidth than today's dial-up solutions can offer, but at speeds slower than T-1. These market segments include: remote branch offices exchanging information with a corporate site; small offices independently linking to the Internet, partners and suppliers; home office workers accessing e-mail, the World Wide Web and other networking services; and teleworkers communicating with coworkers at headquarters or surfing the Web.

Symmetric DSL (SDSL) is the first digital service that offers on-demand connectivity at speeds greater than ISDN's 128K bit/sec and less than T-1's 1.5M bit/sec. Typical SDSL implementations provide two-way bandwidth in the 768K bit/sec range, priced considerably lower than fractional T-1 services offering comparable bandwidth.

At that speed, can the average 56K bit/sec modem user of today take advantage of 768K bit/sec? And is the higher speed affordable? Perhaps not.

The point is this: The needs of the remote branch office are different from those of the small office, the home office, the teleworker and vice versa.

Multispeed DSL is a special type of SDSL technology that provides a low entry point for customers who initially need a small increase in bandwidth but anticipate higher bandwidth requirements in the future.

Using a single pair of legacy copper in the local loop, multispeed DSL delivers a range of bandwidths from 128K bit/sec to 1.024M bit/sec.

This is to address the market's need for DSL in a manner that is cost-effective for carriers to deploy and for business users to adopt. The term "carriers" in this context refers to incumbent local exchange carriers and competitive local exchange carriers.

With multispeed DSL, the carrier provisions DSL service to meet specific user needs by altering three different parameters: the cost of the service, the reach of the service and the bandwidth offered by the service.

Based on their perceived performance, budgetary requirements and distance from the central office, subscribers choose the appropriate service offering.

Carriers normally price these different services on a staggered scale, depending on the cost of competitive service offerings to the subscriber location.

Once a subscriber's service is turned up, the carrier enters the specific data rate and distance characteristics into the configuration database of the network management application for the DSL network device located at the central office.

Using 2B1Q encoding and a special multispeed DSL hardware, the configuration parameters trigger changes in the clock rates and transmission speeds of the DSL link to meet the specified bandwidth targets.

A monitoring utility in the management application allows the carrier to track historical usage of the DSL link and report that information back to the subscriber at appropriate intervals.

If the subscriber regularly hits peak utilization rates, the carrier can migrate the user, at his request, to a higher speed of service at a correspondingly higher billing cost.

The carrier implements the change simply by updating the configuration profile in the management application; no hardware changes are required at the subscriber end or at the central office.

The Yankee Group predicts that, even through the year 2002, more than 90% of digital access lines will operate at 1.5M bit/sec or less.

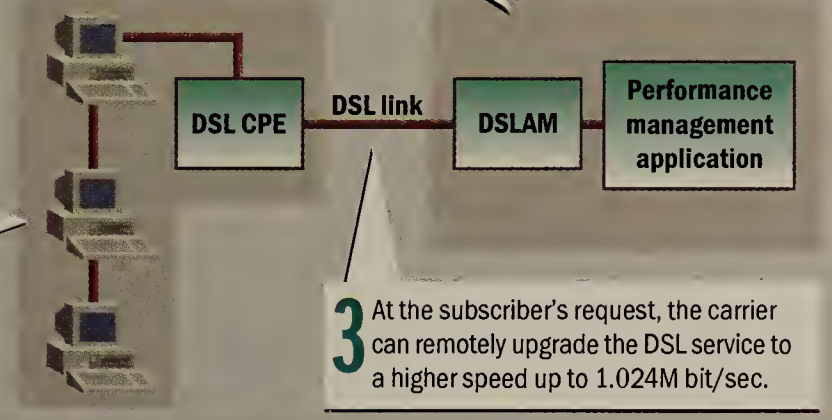
With multispeed DSL, available from companies such as Copper Mountain Networks, Inc., these lines offer an efficient alternative for business remote access: the right amount of bandwidth for the right price.

Helfrich is vice president of marketing and sales for Copper Mountain Networks, Inc. He can be reached at (650) 938-6000.

HOW IT WORKS

Defining Multispeed DSL

Multispeed digital subscriber line (DSL) services let remote branch or home office users adjust bandwidth needs according to usage.



1 The carrier initially provisions the DSL service and customer premises equipment (CPE) for a low speed, such as 128K or 256K bit/sec.

2 A performance management application associated with DSL Access Multiplexer (DSLAM) monitors bandwidth usage and generates reports for the carrier and subscriber. The carrier uses the reports to optimize DSL service based on price and performance.

3 At the subscriber's request, the carrier can remotely upgrade the DSL service to a higher speed up to 1.024M bit/sec.

SPEEDS AND FEEDS

Multispeed digital subscriber line supports the following data rates and distances:

Data rate	Distance
128K bit/sec	22,000 feet
256K bit/sec	21,500 feet
384K bit/sec	14,500 feet
768K bit/sec	13,000 feet
1.024M bit/sec	11,500 feet

Need information?

Let *Network World* provide a quick primer on an important or emerging technology. If you have an idea for Technology Update, contact Michael Cooney by phone at (508) 875-6400 or e-mail at michael_cooney@nww.com.

EDITORIAL *insights*

AT&T finally makes the right move

A year wasted.

That's my read on AT&T's announcement last week that it has signed on C. Michael Armstrong as its new CEO.

Armstrong reportedly was in the running for the top job a year ago, but Bob Allen didn't hit it off with him and never mentioned his name to the board. Instead, Allen offered up John Walter, then the top man at R.R. Donnelly & Sons, a printing company. The board inexplicably went along. Walter lasted all of nine months.

Now AT&T has made the decision it should have made in the first place. What it has lost in the process, we'll never know. Suffice it to say that during the past few months, while the WorldComs and GTEs of the world have been looking ahead and jockeying for position, AT&T's board has been dealing with executive search firms, its hands tied behind a lame duck CEO.

That said, Armstrong looks like the kind of leader AT&T needs. He's no industry outsider, having been with IBM for 31 years as well as serving as CEO of Hughes Electronics since 1992.

It's been well-documented how Armstrong dealt with dwindling defense spending by weaning Hughes away from its defense-driven strategy, instead bringing high-tech to the masses with things such as DirecTV. That ability to deal with dramatic change should serve him well at AT&T.

Let's not overlook the fact that Hughes also has divisions focused on commercial users. Hughes Network Systems makes cellular and personal communications services equipment as well as ATM and frame relay switches. It also offers satellite services of various kinds, from paging to high-speed LAN interconnection offerings.

The point is, Armstrong should be no stranger to the problems you face every day. He's given indications of this already.

"There is no strategy, there is no packaging, there is no bundling that will overcome lack of cost and price competitiveness," he told analysts last week.

That's a refreshing statement given AT&T's recent penchant for hiking frame relay and private line prices. Likewise, it's refreshing that Armstrong essentially refused to play second fiddle to Allen, even for a few months. He wants to call the shots and take responsibility.

"In Mike, we have found a leader with exceptional technological vision, a good understanding of the forces transforming the communications services industry and a strong record of accomplishment," said AT&T board member Walter Elisha, who chaired the board's search committee.

Too bad AT&T didn't land a guy like that a year ago.

Paul Desmond, features editor pdesmond@nww.com

Intranet Advisor • Daniel Blum

Desktop weaknesses offset Microsoft's server strengths

The four days I spent last month at Microsoft's Professional Developers Conference left me feeling bullish on the software giant's Windows NT 5.0 server-side plans but bearish on its Active Desktop and client-side direction.

Articulate Microsoft representatives — many with the title "Evangelist" on their business cards — expounded on some great ideas. A number of bold initiatives, including NT 5.0 Distributed Systems and Zero Administration Windows, indicate Microsoft has heard users' requests for lower total cost of ownership loud and clear.

I'm optimistic that the Active Directory Service will enable many users to achieve Microsoft's vision of a single point of network administration and centralized, secure PC configuration. In addition, the integration of the BackOffice Internet Information Server, Microsoft Message Queue and Microsoft Transaction Server into NT 5.0 will make Web-based transaction processing applications more manageable, robust and easier to develop.

These server-side capabilities will be very good for intranets. Within the Microsoft product line they'll enable you to follow "intranet best practices" — that is, standardize on a small number of robust Web server implementations for document management and Web-based application development and centrally manage the server infrastructure.

But another best practice — enabling easy Web content creation at every desktop — is still tough to do with Microsoft products. Office97 continues to be based on proprietary document formats, and some of Microsoft's Office-to-HTML conversion utilities run slowly and produce ragged results.

I hoped Office97 would help me Web-enable my large inventory of Word documents. But after trying the latest authoring add-ons, I'll stick with Netscape Navigator, Netscape Composer and the trusty clipboard to move content from Word to the Web.

Until Microsoft really builds HTML into its Office product line, Internet Explorer 4.0's Active Desktop capabilities, which let you incorporate Windows and HTML elements on your desktop, are just window dressing. Microsoft's talk of hyperintelligent pages with lots of extensions doesn't do anything to help users, and may even endanger the cross-platform integrity of HTML.

In the meantime, Office 97 makes my PC run more slowly and creates file conversion headaches. Intranet managers in Windows and NT shops had better be careful or they'll have these types of problems spread across thousands of desktops.

Microsoft is a technology company at heart. It is most comfortable ahead of the curve, adding neat features and surfing the boundaries of Moore's Law, which states that the price/performance of workstations doubles approximately every 12 to 18 months. Microsoft will deliver feature-intensive solutions to cost-of-ownership problems but will miss some of the basics: simplicity, stability, performance and support.

Don't get caught on the bleeding edge. Pilot NT 5.0 early and cash in on the NT server revolution once the migration bugs have been worked out. Be slow to adopt Microsoft's new desktop offerings. Hold back on deploying future operating system and Office releases until you can test them thoroughly, coordinate their installation with planned hardware upgrades and build on top of your NT 5.0 server infrastructure. Then use the resulting savings to buy best-of-breed third-party applications and file conversion utilities to backfill any document compatibility issues.

Keep looking for the tools you need to seamlessly integrate word processing and other documents with HTML content publishing. Until you find them, recognize that many users are still jumping through hoops to get their content on the Web, and adjust your performance expectations accordingly.

Blum is a principal at Rapport Communication, a consultancy focusing on intranet messaging, directories and groupware. He can be reached at dblum@mindspring.com or www. rapport.com.

MESSAGE QUEUE

Send letters to nwnews@nww.com or John Gallant, editor in chief, Network World, *161 Worcester Road, Framingham, MA 01701. Please include phone number and address for verification.*

Spam control

Regarding your article "Spammers beware: Usenet2 not for you" (Sept. 22, page 1):

It's about time something was done about the volume of spamming going on. When I subscribe to a particular newsgroup, I do so because I am interested in the specific topic that newsgroup covers. can't afford to waste my time sorting through messages proclaiming, "The best xxx site in the world!" or "Ways to make $$$." Usenet2 sounds great!

Steve Pasikowski
Network administrator
Accident Fund Company
Lansing, Mich.

Switching into a new generation

Due to hardware that invariably failed to live up to its hype, switching and ATM have yet to play major roles in IBM-centric networking. This has occurred despite IBM's continued promotion of such technologies and their burgeoning use in the non-IBM sector.

However, a new crop of switches could change IBM users' attitudes toward migrating to switching-oriented network solutions.

The three new switches that are likely to precipitate this trend are IBM's 8265 Nways ATM switch, Cisco's Catalyst 3900 token-ring switch and Olicom's CrossFire OC-8600 token-ring switch. All of the products offer much higher throughput and added functionality than comparable products, for a significantly lower price.

The Cisco and Olicom switches offer throughput that is at least 1 1/2 times faster than today's fastest switch at a per-port cost that is less than half that of current switches. This makes token-ring switching affordable for workgroup configurations. Individual PCs, with existing network interface cards, now will be directly connected to the switch with dedicated 16M bit/sec bandwidth, while LAN servers and other hosts will be connected by high-speed ATM uplinks.

MARTY BRAUN

Similarly, the IBM 8265 ATM switch has a list price that is one-third lower than an IBM 8260-A17 ATM switch and offers three to four times the throughput of the older switch.

The Cisco and Olicom switches already are shipping in volume and proving to be reliable and stable. The IBM ATM switch is slated to ship early next month. If you have not already started evaluating some form of switching, begin by taking a look at what these new products have to offer.

Given their enhanced speed, impressive functionality and breakthrough pricing, these three offerings deserve to be called and treated as second-generation switches.

The key features that position the Cisco and Olicom switches as second generation include cut-through and full-duplex mode operation, seamless scalability to 200 ports or more and a wealth of uplinks, including 155M bit/sec ATM and 100M bit/sec full-duplex Fast Token Ring.

For its part, the IBM 8265 has 17 slots, a 25G bit/sec ATM backplane and a switching engine that delivers 12.8G bit/sec of full-duplex, aggregate throughput. The modular 8265 can provide for as many as 56 155M bit/sec OC3 ATM ports, up to 14 622M bit/sec OC12 ATM ports, or a combination thereof.

In addition, the switch's backward-compatibility mode enables it to support IBM's existing 8260 ATM and 827x ATM/LAN switching modules. By using the 8260 ATM module developed for IBM last year by FiberCom, the 8265, in theory, can support voice traffic in addition to broadband data and video traffic.

Right now, the 8265's only apparent weakness is its lack of full-blown support for traditional LANs, in particular FDDI and Fast Ethernet. Its current LAN support is restricted to two multislot 8271 Ethernet and 8272 token-ring ATM/LAN switching modules and the Universal Feature Cards that can be plugged into them.

IBM in the near future intends to offer some high port-density Fast Ethernet modules for the 8265.

At the NetWorld+Interop 97 show earlier this month, many attendees asked me how token-ring switching and ATM relate to the SNA-capable intranet paradigm I have been advocating in recent columns.

The answer is very simple. Switching technology, though not imperative, can provide significant bandwidth, at a relatively modest increase in overall cost, to enhance the performance of SNA-capable intranets.

Thus, rather than being mutually exclusive, switching and SNA-capable intranets are complementary and even synergistic technologies.

Bay Networks' 5745 Enterprise Server Module provides a good example of how switching and SNA-capable intranets are converging. The 5745 ESM is a full-function server for SNA-capable intranets that resides within Bay's System 5000 Switching Hub, which supports both LAN switching and ATM. Do not feel obliged to devote all of your attention to just one of these technologies. Instead, you should start crafting plans to integrate your data center with your intranet by using token-ring switching and ATM to satisfy your growing bandwidth needs.

The IBM, Cisco and Olicom offerings have the potential to help switching technology finally gain a firm and permanent foothold in IBM-centric networking. Thanks to these second-generation token-ring switches, you can finally enjoy the true benefits of high-performance LAN switching technology, seamless access to broadband ATM and a viable alternative to Fast Ethernet.

In addition, you can now refine your SNA-capable intranet paradigm to take advantage of these bandwidth-expanding technologies in your LAN/WAN infrastructure.

Gurugé is an independent consultant specializing in internetworking and IBM network architectures. He can be reached at (603) 279-5596 or aguruge@mcimail.com.

Microsoft's real motive

Your article "Microsoft developers snubbing Java" (Sept. 29, page 23) was full of marketing bull. Let's get real for a minute.

Java is scaring the pants off Microsoft because it cannot control its growth or direction. The numbers I have seen on the Web indicate that the ratio of real companies, Web developers and general Web sites implementing Java vs. ActiveX is somewhere on the scale of 10 (Java) to 1 (ActiveX).

Java is a young language that is doing some great things. Sure it's slow for now and will be hard to implement for true client/server projects.

Visual Basic experienced the same problems when it came out, and it is still not a true client/server application development language ready for the big time — simple database stuff, sure, just not the thousands of transactions per day real systems need.

Developers who know their stuff and have fairly evaluated Java know it is better than ActiveX. It is more stable than anything Microsoft has done to date in early releases.

I would hazard a guess that the people who sold you their tripe were junior-level programmers looking to get their words in print.

Larry Scott
Frederick, Md.

Partners in hype

In his column "A sweat and puffery test" (Sept. 29, page 120), Mark Gibbs places all the blame for hype on vendors. I think the trade magazines bear equal responsibility. The trades often reprint press releases with only minor editing, thereby substantiating the products.

It has gotten so bad that while pursuing my MBA, I had an instructor who claimed a product existed (and worked) based on only the ads in the trade mags. I think it's important to look in the mirror before throwing stones.

John Purcell
Information systems manager
Liberty Bond Services
Plymouth Meeting, Pa.

Clueless

Regarding Mark Gibbs' column "Quiz time: Are you certifiable yet?" (Oct. 6, page 137):

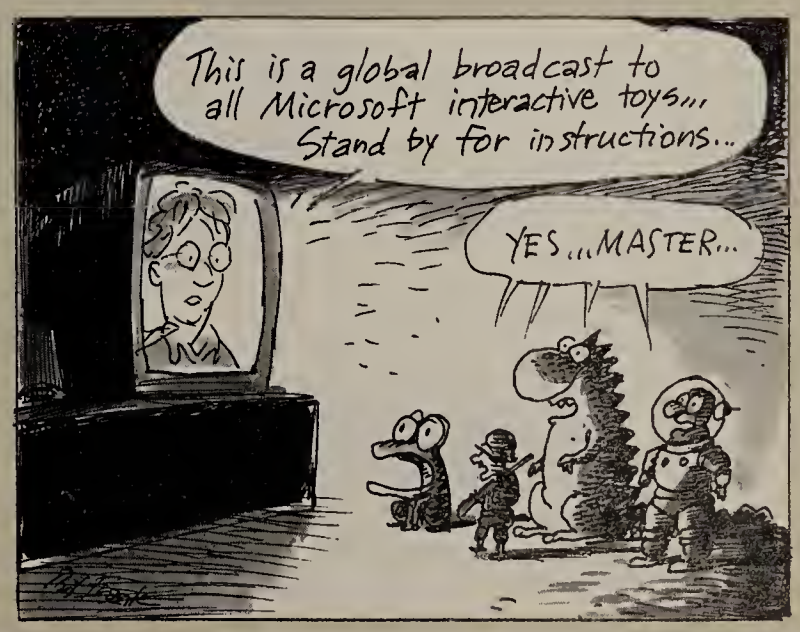
Thanks for the information regarding the Network Operations Certification Learned Under Extremis (NOCLUE) courses. However, I already hold similar certification and feel NOCLUE training would be somewhat redundant.

You see, I currently hold I Did It On-the-job Training (IDIOT) certification.

It's a continual learning process, with classes meeting every day, so your skills never become obsolete.

Bob Hanson
Systems manager
Bill Few Associates
Pittsburgh

Teletoons



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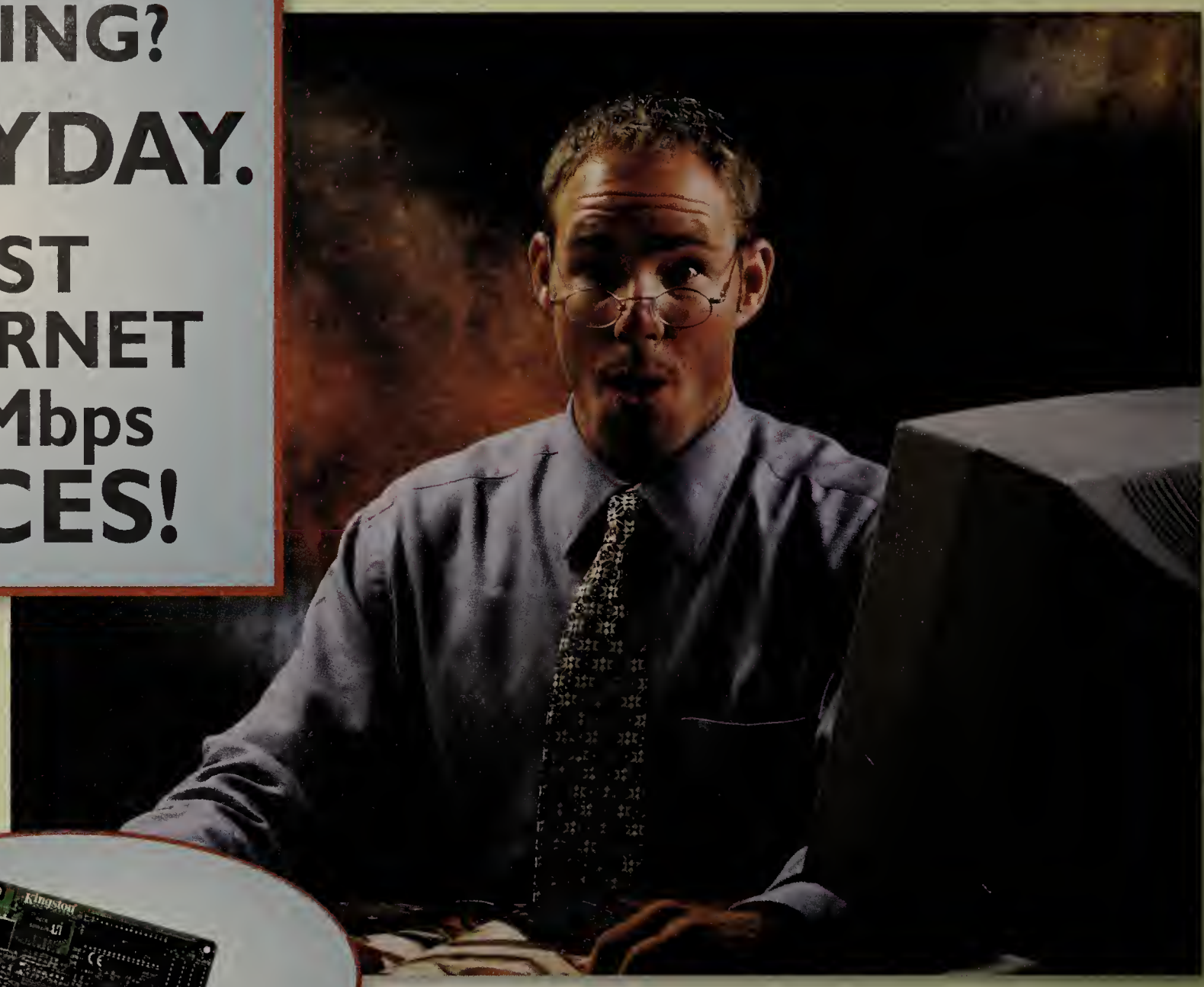

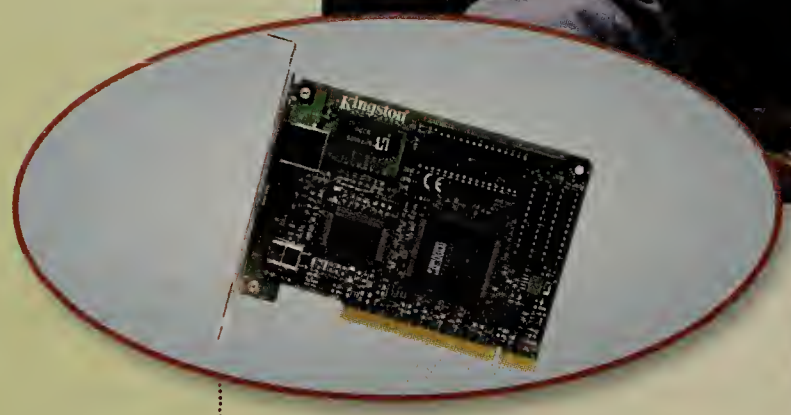

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SMC 10Mbps	SMC8432T	$61
Allied Telesyn 10Mbps	AT-2450T	$55
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FEATURE

REPORTS FROM EUROPE AND ASIA SHOW VARIED APPROACHES TO CONTROLLING INTERNET CONTENT.

Censorship on the 'Net: The view from overseas

From IDG News Service reports

When the Supreme Court struck down the Communications Decency Act (CDA) in June, it was a clear victory for free speech advocates in the U.S. But lest we forget, the Internet is a global beast, and similar debates over how or whether to regulate its content are being played out in countries the world over.

To give you a sense of where some major countries stand on the issue of Internet censorship, *Network World* enlisted the aid of the IDG News Service, a news-gathering organization run by International Data Group, the parent company of *Network World*. The news service has reporters stationed in countries around the world, with the heaviest concentrations in IT hot spots throughout Europe and Asia. The following is their take on where key industrialized countries of the two continents stand on the 'Net censorship issue.

This coverage is augmented online (www.nwfusion.com) by a synopsis of the situation in other parts of the world, including Australia, New Zealand, the Middle East and Latin America.

Censorship ratings:

Red: Internet traffic is highly regulated.

Yellow: Some Internet traffic subject to regulations.

Green: Few or no Internet-specific regulations.

Asia

When it comes to 'Net censorship in Asia, the picture is diverse, ranging from countries with no restrictions on Internet usage to those with governments imposing blackouts on sites featuring topics deemed subversive or offensive.

Typically, countries employing 'Net censorship — notably, China, Singapore and Vietnam — are those governed by regimes traditionally strong on controlling citizens' access to all manner of information, from the printed word to broadcast media.

On the other hand, Malaysia, the Philippines, Taiwan and Thailand have little or no controls on 'Net content. For example, in Taiwan, there is no Internet censorship whatsoever because there is no government organization charged with the responsibility of controlling the 'Net.

It's easy to guess the kind of "sensitive" subject matter countries will censor. While operating a fairly open policy toward the Internet, South Korea blocks what the government deems to be "propaganda" from bitter rival and neighbor North Korea.

China

Regulations in China require anyone who wants an Internet account to register with with the Public Security Bureau, the country's police force.

"'Net censorship here is on a pretty small scale, and there are ways around it," says Jared Peterson, senior analyst for research company IDC China, based in Beijing. He gave the example of Anonymizer technology, which allows users to log on to the 'Net and provides them with an untraceable path. "That kind of circumvention is pretty hard to detect," he adds.

However, given China's attitude toward Taiwan and Tibetan independence, access to Web sites containing material on those topics is blocked by the government, as is access to sites hosted by overseas Chinese dissidents.

Moves are now afoot by foreign powers, notably the U.S., to persuade China's govern-

ment-owned Xinhua news service to lift bans on information from Western media providers such as CNN and *Time* magazine.

IDC's Peterson reckons the level of 'Net censorship in China is no different from that existing in other media in China. "There's no historical precedent for free speech here, so people don't have the same perception about it. They just take it on a daily basis," he says.

Hong Kong

Presently, Internet access is freely available in Hong Kong. Karim Davezac, research director for IDC Hong Kong, believes the situation is unlikely to change in the short term, despite the return of Chinese rule earlier this year. "I have the feeling that the Chinese are trying to have a hands-off attitude in regard to 'Net censorship here," Davezac says.

Japan

Prompted by a well-publicized case last year in which police arrested two Internet users — one a minor — who posted pornographic images of children, a study group under Japan's Ministry of Posts and Telecommuni-cations in May released guidelines for what the group called "semi-open communications."

Drawing in part on surveys of consumer groups, educators, lawyers and broadcasters, the guidelines call for Internet service providers to stipulate rules in their contracts with users that deter sending "illegal or harmful content" over the network.

If users violate those rules, ISPs are instructed to cancel their contract with them. Among nine areas included as grounds for a contract cancellation is information that infringes on the privacy of others or, that is slanderous or forged.

Singapore

Singapore has an extremely detailed and comprehensive set of Internet regulations.

All ISPs, resellers and content providers (above the level of a personal Web site) must be licensed by the Singapore Broadcasting Authority (SBA) to conduct their activities.

All licensed organizations must abide by the SBA's Code of Practice, which forbids them to create or allow access to sites containing unacceptable material.

Material regarded as unacceptable falls into three categories — political, societal and moral. The first category covers matters such as jeopardizing national security and bringing the government into contempt or hatred. The second area forbids inciting racial disharmony or promoting religious deviations or occult practices. The third category outlaws pornography, the promotion of promiscuity and depiction of sexual perversions such as pedophilia. Because homosexuality is illegal in Singapore, it also is included in this latter category.

In late September, the country's National Internet Advisory Committee called for the lifting of a ban on antigovernment propaganda on the Internet, claiming the current rules could inhibit free speech.

Vietnam

Vietnam does not yet permit its nationals access to the Internet, although it has drawn up detailed legislation to regulate eventual access. All ISPs, content providers, organizations and individuals who wish to access the World Wide Web will have to register with authorities.

Responsibility for Web activities will lie with all parties involved; there is expected to be a legal obligation on Web surfers to report any unsuitable material they come across. The ISPs, which will be government or government-linked organizations, will have to provide proxy servers to filter out unwelcome sites. In Vietnam's case, these consist largely of material offered by overseas Vietnamese political organizations seeking to undermine the country's government through the spread of information. The government has warned that penalties for misuse will be severe.

Malaysia

Malaysia's top telecommunications official used his address at the INET conference in Kuala Lumpur in June to reiterate his government's commitment to keeping Malaysia free from regulations regarding who says what on the Internet.

"There is no way that we can block the content that goes through the Internet," said Datuk Leo Moggie, the head of the Ministry of Energy, Telecommunications and Posts. "Instead of blocking [the Internet], we have to adjust how to react to it over time."

But with only two Internet access providers currently authorized by the government, Malaysia is no radical proponent of free-market forces. Moggie defended the government's tight controls on the provision of access, saying that without such a restriction on quantity, the quality of Internet service could degenerate.

Europe

In April, the European Parliament (EP) passed a resolution calling for European and international action to keep illegal and harmful material off the Internet. The resolution urges the European Union (EU) to take the lead in encouraging self-regulation and promoting mechanisms that give users ways to block child pornography, racism, terrorism and other illegal content.

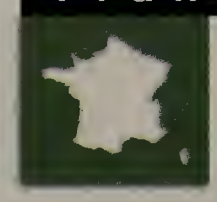
The resolution, based on a report drafted by EP member Pierre Pradier, recognizes the task will be difficult if not impossible in view of the 50 million people worldwide currently using the decentralized network.

To deal with this structure, the EP believes Internet access and service providers should be held liable for illegal content they carry, but this liability should be regulated at the international level.

The resolution also calls for the EU and its 15 member states to require legal traceability of all content providers using the Internet.

The EP resolutions recognize that the same laws prohibiting pedophile and racist material in printed publications also apply to online services, but greater cooperation is needed among police forces at the European and international levels to make sure these laws are respected on the Internet.

France



France last year witnessed a situation similar to the recent overturning of the CDA in the U.S., according to Olivier Iteanu, a Paris-based lawyer and general secretary of the Internet Society (ISOC) of France.

In July 1996, when the former French government drew up laws concerning telecommunications deregulation, a clause specific to the Internet would have allowed for censorship. The clause was challenged by the then Socialist opposition, however, on the grounds it was unconstitutional, and it never entered into law, Iteanu says.

A report commissioned by the French government last year also recommended the application of existing French laws to the Internet, rather than the introduction of new laws, says Iteanu, who is in favor of the Internet community policing itself. Iteanu saw the overturn of the CDA in the U.S. as a positive move that would fuel the argument in favor of such self-regulation in France. A government spokeswoman said it is too early to comment on how the decision may shape the French government's approach to Internet regulation.

Denmark

The Danish Minister of Research and Information Technology, Jytte Hilden, is strongly against any form of censorship on the Internet.

At a conference in Bonn this summer, Hilden addressed freedom of speech and human rights and criticized the majority of Western democracies for the moral panic the Internet has caused among politicians

over the past few years.

"With the Internet, we have been given a media that, for the very first time in history, makes it possible for ordinary people to gain access to information that used to exclusively belong to the elite. Everyone can talk to each other around the world and express themselves and exercise their freedom of speech. And what is the reaction from the politicians other than demanding on the spot that they want to control the Internet? That is not right," she said.

Hilden says the same laws that apply to content in the "real world" should apply to the Internet. However, she has held talks with the Danish Minister of Justice with the aim of securing more resources for investigative authorities so they can solve Internet-related crimes, such as the distribution of child pornography via the 'Net.

Sweden

There are several commissions in Sweden looking into the issue of Internet content at the moment. So far, they have produced no real regulations.

"We have a long tradition of freedom of information here in Sweden," says Jan Freese, director general of Sweden's National Post and Telecommunications Agency in Stockholm. "There are lots of people here that want regulation concerning pornography [on the Web], but it's too early to say. It is more or less impossible to regulate the Internet."

Finland

In Finland last year, the Helsinki Court of Appeals overruled a decision that shut down an anonymous Internet remailing service. The owner, Johan Helsingius, was accused of protecting transmitters of child pornography (among other things) and had been ordered to let police check e-mail addresses stored in the server of his Internet service.

"The general opinion among lawmakers in Finland is that what is legal on the street is legal on the 'Net and vice versa," Helsingius says. "Existing laws simply need to be applied to the new media."

United Kingdom

The U.K. is taking much the same position as Finland.

"We consider the obscenity laws in existence to already cover the Internet," says a representative for the Department of Trade and Industry, the U.K. government body that governs privacy and security on the Internet.

In the U.K., there are two laws that treat the possession and distribution of pornography and other obscene material.

One law, the Protection of Children Act (PCA) of 1978, makes it illegal to possess any pictures of children under the age of 16 — or who appear to be under 16 — in sexually compromising positions. In the late 1980s, the act was updated to include electronic images, according to Martin Jauch, superintendent of the Clubs and Vice Unit for the Metropolitan Police in London.

The other more wide-reaching law, the Obscene Publications Act (OPA), created in the early 1950s, makes it a crime to publish photos or written material deemed "obscene" by police, Jauch says. The major problem with the OPA has been how to define what is "obscene" and what is not.

For its part, the Metropolitan Police wants clearer definitions under which to prosecute offenders of the OPA and has set up a working group with ISPs and legislative representatives to investigate changes to the law, Jauch says.

So far, there hasn't been a case implicating an ISP. In general, ISPs have cooperated with police when it comes to providing information on a suspect who may have a Web site or newsgroup that violates the OPA or PCA, Jauch said. ISPs also have generally agreed to remove sites or newsgroups the police find obscene, he says.

"The responsibility lies with the person who put the information on the 'Net," not the ISP, Jauch says. "We don't seek to go after ISPs."

Ireland

In Ireland, the situation is much like that in the U.K., if even less developed, according to Dave Walsh, member of the cyberliberties group Electronic Frontier Ireland (EFI). Ireland also has its own set of obscenity laws that are being extended to the Internet. In addition, a working group on new media has been set up in the Justice Department that has asked industry and individuals for submissions regarding issues facing new media and cyberfreedom, Walsh says.

In general, EFI is happy with how the Irish government and police are handling pornography cases on the Internet. Under current law, ISPs cannot be held liable for indecent material on their networks.

"No one is closing any ISPs down," Walsh says.

The government wants to take its time before passing any new laws. "They don't want to come up with a policy that will be attacked like the CDA," Walsh says.

Germany

In a country where rules govern everything from when your children can play outside to what day of the week you can wash your car, it seems fitting that the German government would be one of the first in the world to pass a law that attempts to regulate the Internet.

A law passed in June makes it clear that ISPs are responsible for content they produce, says Christopher Kuner, an American lawyer working in Frankfurt who has been following the legislation.

The law also says ISPs must take action to block objectionable content produced by other parties if they have knowledge of such content and blocking its use is technically possible and can be reasonably expected. How that provision will be interpreted is one of the law's glaring uncertainties, Kuner says.

The law does not outlaw any type of expression or communication that is not already illegal. Rather, it states that whatever is illegal offline also is illegal online. That includes child pornography and Nazi party propaganda.

Germany also has stringent laws protecting personal data, making it illegal to distribute magazine subscription lists, for example, or any information about a person's medical history.

Observers aren't convinced the law will achieve all it aims to, and they wonder whether it's even possible to enforce legislation regulating the diversity and freedom of expression that attract so many to the Internet.

Despite this and other questions, leading ISPs in Germany, including T-Online, CompuServe, Inc. and AOL Bertelsmann Online GmbH, have given lukewarm endorsement to provisions of the law that clarify their responsibilities.

One provision of the new law requires ISPs to appoint a youth protection officer, who will act as an "open ear," monitoring content for anything that could be harmful to children. The officer will have the authority to suggest the restriction of certain services.

"It's extending to the Internet a local German idea that young people have to be protected from certain information," Kuner says.

In a less controversial realm, the new law also contains provisions on the use of digital signatures. "This is really something that seems quite reasonable," Kuner says. "It's supposed to establish the conditions for the secure use and the secure infrastructure of the Internet."

Italy

In Italy, no new specific laws have been passed to regulate the Internet, and the country can be considered to have essentially a liberal Internet regulatory regime. In May, the Communications Ministry issued a draft Code of Conduct, which was written in conjunction with the Italian Association of Internet Service Providers and other interested parties.

The code calls for ISPs and 'Net publishers to voluntarily sign up to regulate themselves according to the code. It also calls for a jury to be established, which will arbitrate complaints concerning code signatories who fail to act according to the rules.

Partly due to Italian government crises —

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the government fell Oct. 9 — a final version of the code has yet to be passed.

The rules in the code itself have strictures that call for service providers to signal content that might be considered offensive.

They also call for privacy rights to be respected and that people be given the chance to opt out of personal data collection on the Internet.

Czech Republic

Compared to the U.S. or Western Europe, the use of the Internet in the Czech Republic is not sufficiently widespread to have made regulation or actual censorship an issue for legislators.

Even if some parts of the tabloid press here are trying to portray the Internet as a communication channel for terrorism, pornography or promotion of drugs, there is a strong aversion to any type of censorship in reaction to the "good old days" of communism.

At present, the question of Internet censorship is not a subject of political debate because economic transformation is totally dominating the Czech political scene.

Some universities do regulate in some way the Internet activities of their students (for example, the contents of the Web pages on academic servers), but commercial providers do not.

Nevertheless, with the growing role of the Internet, these questions will soon become relevant.

Michael Hartman, sales and marketing manager of Internet CZ s.r.o. (part of the multinational Eunet), says, "We do not see the question of censorship as discussed in the U.S. as an actual problem. The real problem here is unsolicited e-mail where the content could of course be undesirable. Here we are taking steps to protect the user."

Russia

There is little to no government censorship of the Internet in Russia, according to Michael Novikov, an Internet and investment specialist with the Chance Real Estate Center in St. Petersburg. Still, in December, Russia's Duma called a meeting with Internet industry officials, Novikov says.

"They were quite scared about a borderless community," he says of the Duma, Russia's lower house of parliament. But the meeting gave Internet officials a chance to show "these state guys what was going on and why there should not be control over Internet [content].

"The result was they decided to postpone their intentions" to regulate the Internet, Novikov says, "but it will emerge again." The Duma was considering a proposal to have government organizations monitor Russian Web sites for political reasons, he says. Via the Internet "everyone can put [forward] their own opinion, which can completely confront state policy," Novikov says.

Still, a large majority of Internet users in Russia today are scientists who use the Internet for their work rather than politics, Novikov says.

Sasha Galitsky, president and CEO of Elvis + (which he claims created the first Russian site on the Web four years ago), says the government is more afraid of external sources of information than internal.

Still, the government recently formed the State Committee of Communication and Information, Galitsky notes, which will oversee Internet issues.

The Russian criminal code was revamped in January, according to Eugene Peskin, project manager for Russia-On-Line at Sovam Teleport in Moscow, and the changes have ramifications for the Internet. Before, for instance, distributing pornography of any kind was punishable by law.

Now only the illegal distribution of pornography is punishable, although the government has yet to outline what distribution is legal and what isn't, Peskin notes.

In Russia, as is the case elsewhere, Web users who are accessing pornographic material are generally visiting sites hosted outside of the country, Peskin points out. Therefore, issues of censoring pornography or political propaganda cannot be managed simply by monitoring Web sites within national borders.

However, Russian ISPs are more likely to follow practices of self-censorship rather than waiting for the government to take action, Peskin says.

For example, distribution of Nazi materials is against the law in Russia, but Russia-On-Line will block or remove such materials itself, rather than calling on the government to take action.

Hungary

Eastern European countries such as Hungary are not very concerned with Internet censorship of pornography, according to Steven Carlson, chief strategist at iSYS Hungary Kft., a Web design and programming firm in Budapest.

"As far as moral censorship goes, it is not a push-button item here," Carlson says. "People in this part of the world talk to their children, and they are not as Puritan. The attitude here is don't make a fuss about it. Of course, if it's against the law offline, it's against the law online."

Go online for an expanded version of this story that includes coverage of Latin America, Australia and New Zealand, the Middle East and Canada.

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As is the case with Russia, political censorship is more of a concern in Eastern Europe. Displaying communist symbols is illegal, he points out, adding that "the Workers Party has a site up, but no one has made a fuss about it."

In the more repressive eastern countries, all forms of censorship come into play more, Carlson says, citing Slovakia and the Balkans. "You have a certain unpredictability," Carlson says, "so you are more likely to have censorship."

The section on Asia was written by Clare Haney, Asia-Pacific bureau chief; Rob Guth, Tokyo correspondent; Terho Uimonen, Taipei correspondent; and David Legard, a freelance writer in Singapore.

The contributions from Europe are thanks to Jeanette Borzo, Paris bureau chief; Joanne Taafe, Paris correspondent; Kristi Essick, U.K. correspondent; Margret Johnston, Munich correspondent; Elizabeth DeBony, Brussels correspondent; and Marc Ferranti, New York bureau chief. The item from the Czech Republic was written by Pavel Houser, Computerworld *Czech Republic. The item on Denmark was written by Lisbeth Egeskov,* Computerworld *Denmark.*

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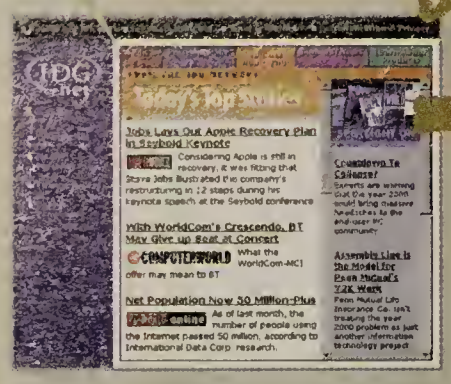

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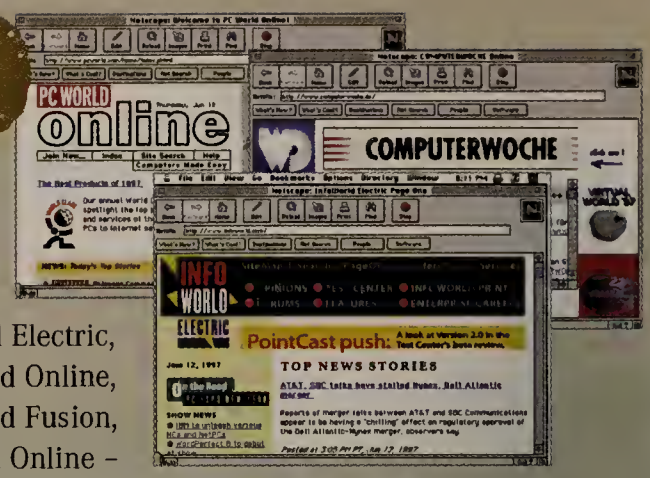

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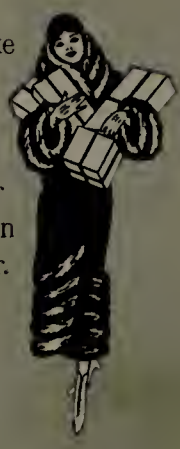

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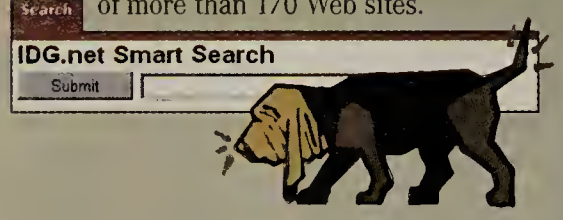

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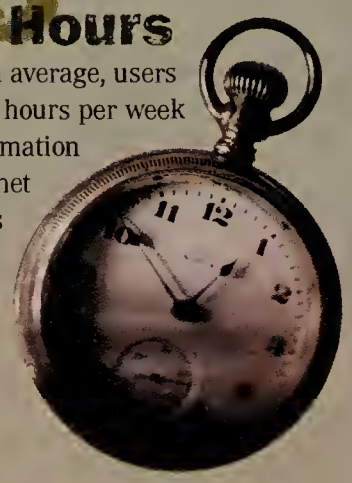

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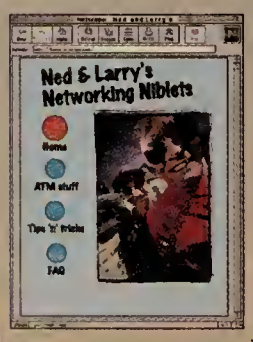

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REVIEW

WE LOOKED AT FIVE TOOLS THAT SEARCH FOR NETWORK SECURITY HOLES AND FOUND ONE THAT'S WORLD CLASS.

Beating back the hackers

Continued from page 1

The commercial products take different approaches to finding vulnerabilities. Internet Security Systems, Inc.'s (ISS) Internet Scanner, for instance, finds weak spots by mimicking hacker activity with as much precision as possible. As a result, the product has earned a sound reputation and our World Class award, which goes to products scoring 9.0 or above.

Axent Technologies, Inc.'s OmniGuard/Enterprise Security Manager (ESM), on the other hand, is a multifaceted suite that detects and corrects security flaws across a corporate computing platform. Stalker, the product of Trusted Information Systems, Inc. (formerly Haystack Labs, Inc.), watches the actions taken by enemies of system administrators and identifies their misdeeds. But it works after the fact, only notifying you when someone has opened a security hole, whether inadvertently or on purpose.

The shareware products didn't fare as well, but we gave them a try because some of the earliest vulnerability scanners were spawned in the shareware world. We had some success with Computer Oracle and Password System (COPS) — one of the pioneering packages — and an upcoming product called Asmodeus. Both products indoctrinate you into the world of vulnerability scanning, but the commercial products have what it takes for industrial-strength protection.

You may notice a couple of well-known products are missing from this lineup. Milkyway Networks Corp. declined our invitation to submit its SecurIT Audit for this review because it was nearing completion of a new version that was not ready in time to bring into the lab. We also tried to examine the Security Administrator Tool for Analyzing Networks (SATAN), another of the earliest and most controversial vulnerability scanners. The product has not been updated in two years, however, and proved to be a complex piece of work. In fact, we gave up on SATAN because of its limited support and consistent problems in installing and using it (see story online at www.nwfusion.com).

A view from atop the vulnerability world

Each product comes with a database that contains details about known security problems. When new threats are uncovered, most products enable you to acquire database updates from your suppliers.

With the firewall Web server and intranet scanning found in ISS's Internet Scanner, you get a crystal-clear view of what unauthorized persons may find waiting for them to exploit on your servers. Internet Scanner often is compared to SATAN, but its extensive set of tests and ready installation distance it from that product.

Internet Scanner runs on Unix or Windows NT and focuses more on finding security vulnerabilities on the network than on finding holes in the operating systems running on network-attached devices. For instance, it has an extensive database of IP vulnerabilities and can be updated regularly as new ones are unearthed.

Installation was easy. However, one of the product's built-in security features can cause trouble if you're not prepared. It requires you to get a security key from ISS that identifies the IP address of a machine you are about to scan before you can scan it. Since Internet Scanner can be downloaded from the Internet, the key helps prevent hackers from using the product to scan IP addresses they do not own.

While you can easily tune Internet Scanner to find the type of security problems most pertinent to your organization, we ran it in its default configuration for the sake of comparison with the other products. We got back detailed information, including the available network services Internet Scanner found, as well as the result of a series of tests it performed to exploit these services.

Administrators with strong security skills will find a quick look at the log results sufficient. But we really liked how less-skilled personnel could get a more detailed view of the log, complete with a step-by-step account of what the product tried, the results it got and an explanation of the ramifications if you didn't plug the holes.

For example, Internet Scanner found a high-risk vulnerability in a remote procedure call (RPC) file. It told us that because the file in question contained application state information and did not validate information it received from other RPCs, an intruder could send an RPC resulting in the creation or removal of any file on the system. It also gave us information about where we could find a patch to rectify the problem.

System guard on duty

Axent's OmniGuard/ESM is designed to manage and enforce security rules across various client/server platforms, with vulnerability scanning playing a major role in the effort.

ESM, which was one of the easiest products to install, can only be used by an authorized administrator with the right system access privileges. The product examines your security rules and policies and lets you know if networked systems are configured well enough to comply with them. It's like having a competent friend review your work before you turn it in to your boss.

One of ESM's best features is its custom configurability. You can create policies for individual platforms as well as domain-specific policies that require every machine to universally comply with a common set of security rules. The ability to create custom policies helps you decide how to evaluate your security controls. For example, if you are interested only in file attributes and system auditing, you easily can configure the product to look at just those. The product also has default policies based on common security principles. For comparison, we used those policies and found they work well.

The results of the scans were extremely use-

Score Card

	Results (40%)	Features (25%)	Administration (20%)	Installation and configuration (15%)	Total score
Internet Scanner	10 x .40 = 4.0	9 x .25 = 2.25	9 x .20 = 1.8	8 x .15 = 1.2	9.3
OmniGuard/ESM	8 x .40 = 3.2	7 x .25 = 1.75	9 x .20 = 1.8	8 x .15 = 1.2	8.0
Stalker	8 x .40 = 3.2	7 x .25 = 1.75	8 x .20 = 1.6	6 x .15 = .9	7.5
COPS	5 x .40 = 2.0	5 x .25 = 1.25	4 x .20 = .8	6 x .15 = .9	5.0
Asmodeus	5 x .40 = 2.0	4 x .25 = 1.0	5 x .20 = 1.0	4 x .15 = .6	4.6

Individual category scores are based on a scale of 1-10. **Percentages** are the weight given each category in determining the **total score.** The World Class award goes to products that score 9.0 or better.

ful. They listed concerns you should have about operating system security and identified multiple levels of potential problems. From a skilled system administrator's point of view, a lot of these problems could have been located manually, but ESM's quick, in-depth review facilitates the security review process. From a business standpoint, it saves time and money.

ESM also allowed its findings to be reviewed online immediately after a scan or in a customizable report format. When viewing results online, the product identified high levels of concern by using red icons. Lesser concerns were shown in yellow, while green was used to indicate areas where there were no problems.

Viewing the results in report format gives you detailed information about a particular concern. For instance, a report will flag the fact that certain accounts referencing nonexistent home directories are in violation of a security policy. The reports also will suggest a corrective action and explain the ramifications if you take no action. This rating process is similar to what ISS has to offer.

One of the good things about this tool is that it automatically fills holes after it finds them. Or, you can review the results and then tell ESM to fill a hole. This provides an addtional service to overburdened security administrators.

Although ESM provided us with helpful input for identifying system security problems, it had little to offer when it came to looking for network-related security holes. If we were looking at products that only scan for operating system vulnerabilities, ESM would have scored higher.

A good stalker

Another way to catch vulnerabilities is to keep a close eye on audit trail information generated by your operating system. In Unix environments, a good choice for this task is TIS Stalker.

Anyone who has ever tried to make sense of Unix audit information will quickly grasp the value of this product. It makes easy work of analyzing audit data, and it points out potential security faults. You also can have the product look for specific information, such as the actions a user has taken over time. Further, it can tell you what actions have been taken against a particular object, such as how many times users have tried to open a secure systems file. You even can store audit information for historical perspective.

The installation process was not difficult, but some simple changes in the installation guide could have made things easier. For example, the Stalker setup program started with a step-by-step installation routine, but suddenly provided information that didn't mesh with what was in the manual. That was one of our major problems with the product — quality control was not up to par. On top of documentation problems, we found several screens — especially the ones used to configure the product — where parts of images or text were cut off.

Aside from those problems Stalker provided useful insight into what actually is happening on your system. If you follow Stalker's two prebuilt examples, you quickly will understand how this product can help you. For instance, one example teaches you how to track down the person who stole the CEO's e-mail by looking for specific information in the audit trails. Because it is a tutorial, however, the example lacks the type of analysis you get when you run it on a real system.

Stalker produced good reports, including analysis, when we looked for problems. It clearly identified problems and their perpetrators in a "Misuse Detector Event Report." It also gave us the technical audit information that would be essential in building a case against the offenders.

One thing to remember about Stalker is that system audit functions need to be turned on. That may seem logical, but many administrators do not use the audit functions on their systems. Rather, they say auditing chews up system resources.

Call the COPS

If turning on auditing functions is more than you want to do, you can get basic Unix system vulnerability data from COPS, a shareware product. One of the major drawbacks with COPS is that it hasn't been updated in a few years. Still, it can flag a number of problems on the workstation or server and provide a good entry point to vulnerability testing for little more than the cost of the bandwidth to download it.

COPS basically is a collection of shell scripts and C programs that checks password, configuration, system, duplicate user ID and group files. It also reviews users' home directories for exploitable security vulnerabilities and gives you quick and meaningful results.

We installed COPS based on files that came with the downloadable software and found it simple to configure.

However, COPS requires you to have root authority on the system in order to get the highest system privileges possible.

In our test, COPS identified some major security risks, including system files that were left open, leaving data about the entire user base vulnerable for manipulation.

The reports COPS gives you are limited, and it can't go beyond looking for basic faults in Unix system security. Still, it's a viable tool if your budget is tight.

Go online for:

- **More details on the scoring system for this review**
- **A white paper by this review's author that covers why you need to develop a security test program and the various forms of tests you can conduct**
- **A link to the Information Systems Security Association's Web site, where you can download a variety of useful network and systems security utilities**

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Net Results

	PROS	CONS
Internet Scanner 4.3.3 *Internet Security Systems, Inc.* *(770) 395-0150* *www.iss.net/prod/isb.html*	▲ Easy to configure ▲ Great logs of actions taken and results received ▲ Ready-made management report of findings	▼ Requires an add-on product to identify Unix system vulnerabilities ▼ User interface needs improvement
OmniGuard/Enterprise Security Manager (ESM) 4.4 *Axent Technologies, Inc.* *(800) 298-2620* *www.axent.com/product/esm/esm.thm*	▲ Easiest product to install ▲ Thorough documentation ▲ Ability to fix critical security flaws	▼ Needs to be installed on system being tested ▼ Report formats need adjustment
Stalker 2.1 *Trusted Information Systems, Inc.* *(Formerly Haystack Labs, Inc.)* *(512) 918-3555* *www.haystack.com/prodfr.htm*	▲ Good online tutorials ▲ Quickly analyzes massive number of audit records ▲ Can be focused on specific users or activities	▼ Works only when auditing is enabled ▼ User interface cuts off images and text ▼ Test results can be overly technical
Computer Oracle and Password System (COPS) 1.04 *Shareware* *ftp://cert.org/pub/tools/cops*	▲ Easy to configure and use ▲ Free	▼ Not recently updated ▼ Basic findings and reports
Asmodeus 0.22 *Shareware* *www.asmodeus.com*	▲ Simple to install and runs quick ▲ Free ▲ Identifies versions of products running on IP ports	▼ Still in alpha, with some functions not yet working ▼ Limited help and documentation

A look at the new kid

Another product for budget-restricted administrators is the alpha release of Asmodeus. The shareware tool requires no special system access privileges but lacks restrictions to prevent someone from launching unauthorized test attacks. Its primary function is to scan IP ports on multiple network servers for available services and identify potential weaknesses.

Asmodeus was easy to install on Windows NT and took no time to learn, despite the lack of extensive help. It also ran quickly, whether we were checking a single IP address or a series of Class C addresses.

The product identified accessible IP ports and returned specific information about them. For in-stance, it quickly scanned IP ports one to 120, identified the services associated with them and returned data about the services running on each one.

The product was able to identify which version of software services, such as sendmail, were running on an IP port and gave information about potential port implementation flaws. It did not try to exploit those faults, leaving that up to the administrator. Furthermore, getting reports and printing results was nearly impossible.

Despite lacking some basic features, the tool helped us quickly survey our test bed for security vulnerabilities before we ran the other products. It gave us the baseline problems we could use to judge what the other products could catch.

Even though the shareware products scored low, it's hard to find fault with them. They make the difficult job of securing networks and the systems on them easier by identifying readily exploitable holes. Thus, they enable you to take proactive actions against attacks.

Using a shareware tool has advantages. They don't cost much and are quickly accessibile. However, when you want to run vulnerability scans on a routine basis to gain an in-depth understanding of real security issues, commercial products are the way to go.

You can expect to see more commercial products hitting the shelves soon. In fact, we uncovered beta products from Netect, Ltd. and WheelGroup Corp. as we were wrapping up our testing, but didn't have time to put them through the paces. You also can expect vulnerability testing to be added into other products, such as firewalls and operating systems.

In the meantime, regularly using any of the tools we reviewed significantly reduces your exposure to network invasions.

Kates is the chief technology officer at Security Experts, Inc., a Largo, Fla., consulting firm specializing in securing client/server environments. He has done thousands of vulnerability tests for clients and can be reached at jim@securityexperts.com.

How We Did It

Using the test network of a large telephone company in Florida, we set up a Sun Microsystems, Inc. scalable processor architecture (SPARC)-based workstation running Sun OS 4 as the target of attacks. We preconfigured a different set of known vulnerabilities on the target host to see whether each product could identify them. Each product found the vulnerabilities we set up. Products that found a greater number of unexpected vulnerabilities scored higher in our test results.

Getting tough about time off

Top IS recruits are demanding — and getting — more vacation time.

By Michael Csenger

If time is money, then what is time off? It used to be a carrot on a stick: one or two weeks of vacation per year, with the promise of three weeks down the road. These days, however, vacation benefits are being measured in carats — the diamond kind.

In a tight market for IS professionals, vacation time is a serious benefit for attracting new hires. Network staffers are in high demand and thin supply, and they know they will get worked to the bone. Time off after a year of long weeks with a heavy, hounding beeper is a reward that runs as deep as any bottom line.

While some companies already have figured this out, others haven't yet. "I've had good, qualified people walk away from job offers that refused to match their existing vacation allowance," says Frank Schoff, president of Management Recruiters, Inc., in Cedar Mountain, N.C.

Schoff recruits IS professionals for companies in various fields and notes a difference in the compensation attitudes of technology vendors vs. traditional user companies. High-tech start-ups are extremely flexible.

Large corporate technology users, however, remain constrained by vacation policies that are a dusty part of the corporate mind-set that's existed for the past 20 or 30 years, he says.

"I try to tell my clients not to let a week of vacation stand between them and a highly qualified employee," Schoff says. Because all employees aren't treated equally when it comes to pay, if prospective employees want four weeks of vacation, let them negotiate it as part of the compensation package, he advises.

"We're fairly flexible because we recognize the challenge of obtaining top talent these days," says Keri Tucker, human resources manager for Peters and Associates, Inc., an IT consulting firm in Elmhurst, Ill. "People know it's an employees' market. If someone sticks to their guns, they know we're in a position to compromise."

"We've had a few instances where vacation carryover was a real issue, and we increased their time off to match," she says.

From a manager's viewpoint it becomes a poker game, says Jack Erdlen, vice president of Romac International, a placement services firm in Wellesley, Mass., that specializes in IS and other professional fields.

"We find things unheard of being negotiated in this market," he says. "This stuff gets settled behind closed doors, outside of policy. Managers can negotiate an extra week without putting it in writing. People take Fridays off during the summer, or have their spouses travel with them when possible.

"I have a guy who takes three months off every summer to go sailing," Erdlen confesses. "He's just too good to do without for the other nine months of the year."

It's not just a result of today's tight job market. It's something that's happening in the broader aspects of work and family, Erdlen says. "There's a different type of work contract evolving and if you are not flexible, you're going to get killed. Good people will take their bag of tricks elsewhere."

However, Erdlen concedes that while the monolithic vacation policies were easy to keep an eye on, today's new contracts can be difficult to manage. "I have to keep track of who's off when and try to balance my forces," he says, speaking of his own workforce. "Sometimes I stick my head out the door on Friday and wonder if there's anyone else in the office," he says.

Haggling over time off might appear to send the wrong message to prospective employers. But it shouldn't if you bargain correctly.

"Employees who make a fuss about their vacation time might be seen as slackers, but when you hold it out as a bargaining chip before you sign aboard, your leverage is better," Schoff advises. "The best time to negotiate vacation is when you're being hired — it's hard to quibble once you already belong [at a company]."

"As long as the person gets the job done, vacation is part of the same work ethic that brings us flex time or telecommuting," Erdlen says.

Network opportunities in educational institutions present the ultimate in bottom-line trade-offs because colleges and universities typically extend their summers off to professional staff.

"We have such a generous vacation policy that it's just not an issue when recruiting IS people," says the HR manager of a large American university who asked to remain anonymous. "We give six weeks of vacation every year beginning on day one. The problem we run into is salary — we're about $5,000 out of the normal salary range for the types of people we need to hire."

Most observers agree that despite changing work models, today's tight market gives network staff the leverage to wrangle time off. The engineering sector saw a similar crunch in the '80s, but the early '90s brought layoffs and a buyer's market. So while diamonds might be forever, vacations are not — weigh your carats now.

Csenger is a freelance writer based in the Chicago area. He can be reached at mcsenger@mcs.net.

TIME OFF FOR LOYALTY

Average vacation policy based on a survey of 814 companies across the country:

2 weeks:
First year of employment

3 weeks:
40% of employers offer within four years of employment; 30% don't offer this much time even after seven years.

4 weeks:
Roughly 40% of companies offer within seven to 12 years, but another 40% require at least 13 years.

5 weeks:
15% of employers require just 10 to 15 years; 25% of companies offer after 20 to 25 years.

SOURCE: ROMAC INTERNATIONAL

Go to Fusion for more information on changing vacation policies.

Paid time off plans give workers flexibility

Paid Time Off (PTO) plans are becoming a popular strategy among companies that want to simplify and defuse the demand for more flexible leisure time. PTOs pool sick and vacation time that were previously managed as separate plans, letting employees take their allotted days off as they choose.

IT consultancy Peters and Associates, Inc. moved to a PTO plan that gives employees 15 days off after six months of service, and 20 days after five years. "It gives people more flexibility and they like that," says Keri Tucker, HR manager of the company based in Elmhurst, Ill. "We've only implemented the plan for about two months but haven't yet run into issues where new hires have tried negotiating for more time. The plan's flexibility should alleviate those demands."

— Michael Csenger

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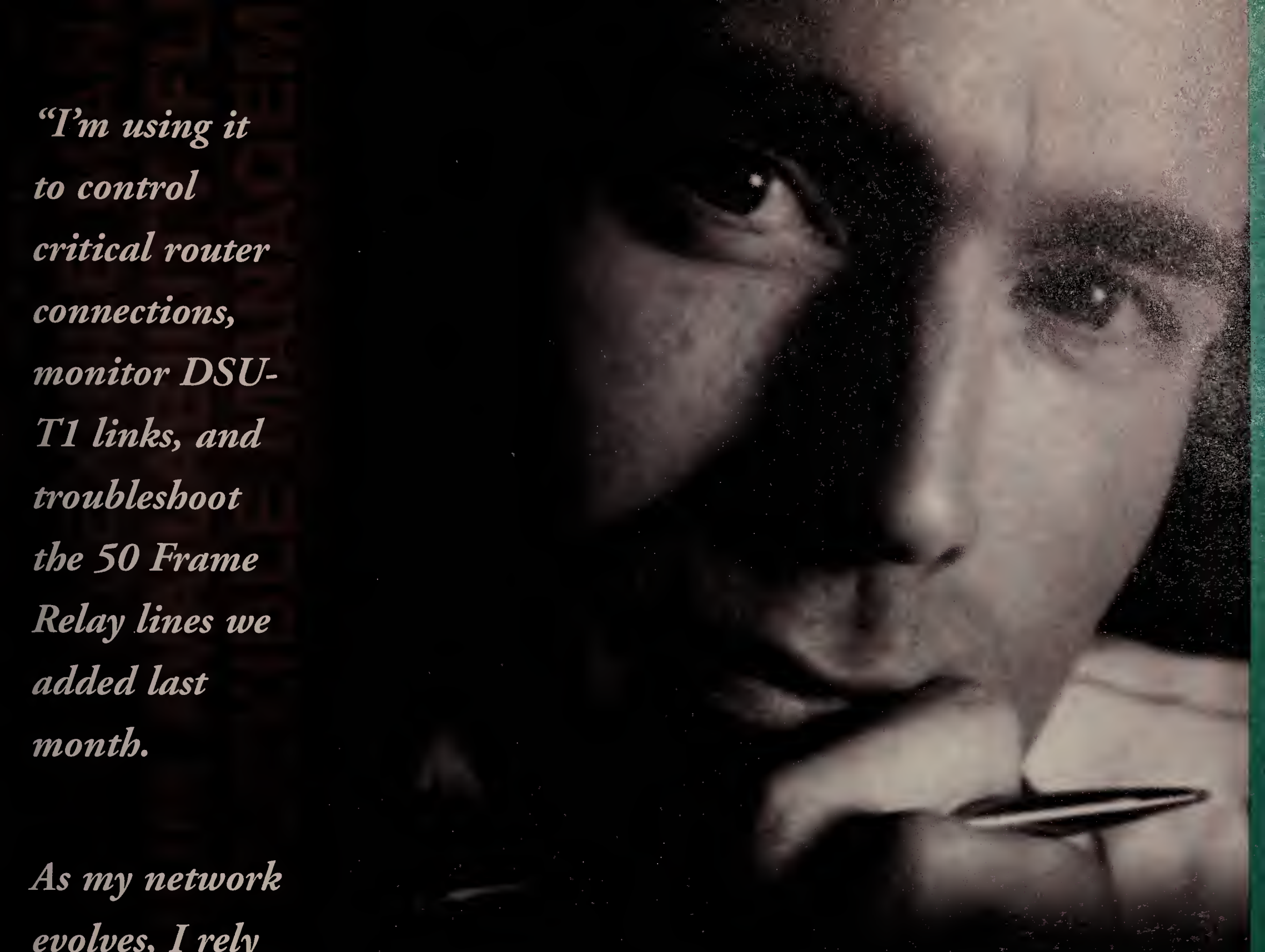

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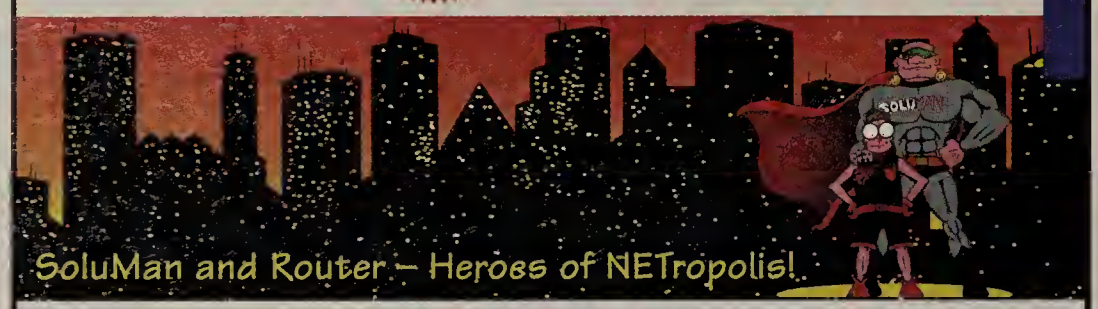

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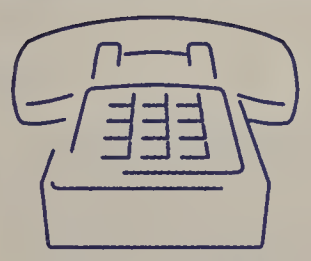

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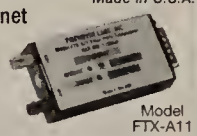

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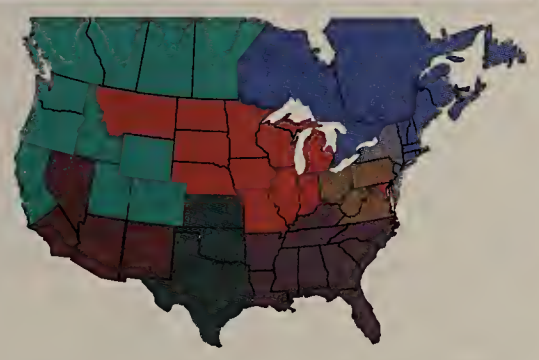

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Armstrong

Continued from page 1

the halls of AT&T that the local telephone market is costly to get into. Everyone except members of Congress already knew that before the Telecommunications Act of 1996 was passed. You may simply have to go and buy the competitive local exchange carriers that have been building alternative networks to the regional Bell operating companies.

That's where some bravery may be needed. Perhaps to its credit as an American institution, AT&T has been loath to enter that market with what some people will brand a "cream-skimming" strategy. That is the strategy in which a carrier first goes after high-volume businesses and only later moves to small business and residential customers. "But they are beyond that point," Sazegari said. "There's been so much criticism of them that now they can start doing something."

Users are encouraging you to make the investments AT&T needs. "I hate to say let's go back to '84 [before AT&T was broken up by the government]," said Robert Nebiker, director of network services for Telxon Corp., in Akron, Ohio. "But the more they can control and the less they have to rely on other [local exchange carriers] or other [post, telegraph and telephone administrations] the better, because what they control works great."

While you're taking a good hard look at the local telephone market, here's something else local you ought to look at: the LAN. At the beginning of the year, AT&T said it soon would announce vendors that were expert in LAN issues — whether server, network operating system, application or integration vendors was left unclear — to partner with AT&T's Managed Network Solutions area. Now it is almost the end of the year and no such partnerships have been forthcoming.

It's one area where you enter with a lot of advantages. AT&T is winning a disproportionate share of the frame relay business, according to new studies by Vertical Systems Group and others. Your sales reps are keeping lots of old AT&T private-line users in the fold, but the growth in multiprotocol traffic and complex client/server applications is causing them to turn to your managed frame relay offering, which is still generally considered a WAN-only operation.

The next step may have to be to pay laser-like attention to an old telecom bugaboo: billing.

"We would like AT&T to provide us with better automated billing services," said John Montgomery, director of technical services at Embarcadero Systems Corp., a San Francisco-based maritime software designer that rebills sister companies for whom it provides information technology services. "We need the ability to go in and see how the bills are structured and what they are specifically based on. It takes AT&T a long time to turn our requests around," Montgomery said.

In general, you should move AT&T to a unified customer-care structure that handles voice, data and Internet traffic in a bundle, Nebiker said. "My overall suggestion would be to deproductize AT&T in a way. I always feel like I'm dealing with the [Software Defined Network] company, the frame relay company and the Internet company, rather than just one company."

Since you once ran global sales for IBM, you're in an ideal position to repair one of AT&T's chronic problems: A hopelessly confusing international strategy. Enterprise network managers are up in arms about the cost of international circuits, and they want somebody to take the burden of dealing with foreign phone companies for local circuits off their shoulders. But AT&T's lineup of foreign partners seems to shift with regularity and no one appears even to know the name of your foreign alliance: Unisource? Uniworld? World Partners?

Don't smugly sit around and gloat over the fact that other global alliances, notably the Concert alliance between MCI Communications Corp. and British Telecommunications plc, may be going through a period of uncertainty. Many people in the industry were taken aback by AT&T's sarcastic official statement the day WorldCom, Inc. made its buyout offer for MCI to the effect that it would take forever to gain the approvals to close such a deal.

Here's the problem: While you're sitting around chuckling about upheaval at MCI and Concert and assuming it buys you time, real users such as Xerox Corp. are snubbing *all* the major carrier alliances and picking little-heralded networks like Equant International Corp. That company has installed 220 Northern Telecom, Inc. Magellan Passport ATM and frame relay switches and is leveraging decades-old relationships with PTTs. Remember, competition can come from any corner these days and your domestic frame relay and Internet access users are begging for some reasonably priced international services.

AT&T head Robert Allen *passes the torch and joins hands with newly elected executives, CEO C. Michael Armstrong and President John Zeglis.*

STEVE BORNS

"We have buyers that travel around the world and they want to easily dial-in for their e-mail," said Stan Miller, manager of telecommunications at Pier One Imports, Inc., a national retail chain based in Fort Worth, Texas. There is no economical way to do that with AT&T today, he said.

Pier One employees do dial-in when they are on the road, but they use another carrier's international network to access their e-mail, Miller said. That service costs "at a minimum $3,500 per month even if we don't use it. That's too expensive." ■

VPN

Continued from page 1

of communications and office software suites for its server line.

With the addition of eNetwork VPN products, IBM continues to make new forays into the TCP/IP arena — a market that just a few short years ago it seemed to be conceding to Cisco Systems, Inc. and other big IP vendors.

While it still has to prove its mettle, new products such as its Integrated Switch/Router (*NW,* Sept. 13, page 27), a high-end switch for Internet service providers, high-performance TCP/IP software for the mainframe, and a raft of IP client software, IBM is striking out in a number of new directions.

The company also is determined not to let Cisco, Bay Networks, Inc. and others that have VPN technology dominate the market.

eNetwork VPN products will let users link branch offices or remote users with corporate resources over the Internet or an intranet. The products also will be deployed by IBM's Global Network value-added network service to provide links between business partners. A long-term goal is to target ISPs with eNetwork VPN packages, executives said.

"Our long-term goal is to provide the technology that will enable users to link VPNs across multiple ISPs, which is something that can't be done today. In the short term, we want to enable users to reduce their leased-line and remote dial-in costs with a secure VPN," said Alfred Zollar, general manager of IBM's Networking Software Division.

"What IBM is doing is creating infrastructure, putting plumbing in place. Their focus in this is securing the connection," said Rick Villars, an analyst with International Data Corp., a consultancy based in Framingham, Mass.

VPN on the move

A sampling of companies working on virtual private network technology or services:

- 3Com
- Ascend
- Bay Networks
- Cisco
- Lucent
- Newbridge
- PSINet
- Shiva

IBM is offering security, not only over the public Internet, but within the company intranet as well, Villars said.

"To be a real VPN you need to extend security all the way to the end server," he said.

A VPN relies on transmitting encrypted data over the public 'Net from site to site — a process called tunneling. When the tunneled data reaches its destination, it is decoded and authenticated at a firewall. A key to the technology is guaranteeing security and reliability over the Internet.

That is just what IBM intends to do.

Some of the VPN products already are available in its AIX family. For example, in June IBM released the AIX Firewall 3.1. This month it will ship AIX 4.3. AIX 4.3 supports the emerging IETF IP Security (IP Sec) key, which defines a standard way of encrypting data.

IBM's eNetwork Communications Suite for Windows 95 and OS/2 Warp 4 clients already supports IP Sec. So at the end of the month, users will be able to set up a VPN between an AIX server and eNetwork clients.

Over the next year, IBM will add IP Sec and firewall support to its OS/390, OS/400 and probably the OS/2 Warp server families, as well as to its 2216 switch and 2210 routers.

IBM also will implement the Lightweight Directory Access Protocol (LDAP), an industry standard for accessing network directory services. Implemented across its VPN servers, LDAP should enable widely scattered VPN users to easily communicate with each other and access network resources.

IBM also will add a Java-based application that can manage the IBM VPN environment. ■

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Backspin

Dear Ms. Reno: A letter from the Gibbs Institute

Dear Ms. Reno,

I applaud your commitment to the law. You've displayed impressive fortitude in the White House campaign funds issue (all the more impressive in the light of the political pressure it must put you under) and generally conduct your department's affairs well.

But Ms. Reno, you don't know jack about software. Our suspicion here at the Gibbs Institute is you're being advised either by people who think they understand the software industry or by people with a vested interest. We would respectfully suggest that you're making a big mistake.


Mark Gibbs

Let us look at what the problem is. Your department's antitrust division has asked a federal court to hold Microsoft in contempt of a 1995 court order that was intended to prevent Microsoft from forcing personal computer makers to accept anticompetitive licensing terms.

The claim is that Microsoft violated the order by making PC manufacturers license and distribute Internet Explorer if they want to put Windows 95 on the computers they sell.

If you understood how computers work you'd understand that the fact a piece of software is bundled doesn't mean it has to be or will be used. You are quoted as saying, "This is a violation of the court order and plain wrong. Microsoft is taking advantage of its Windows monopoly to undermine consumer choice." But if the users don't like Internet Explorer, they can download Netscape Communicator, HotJava, Lynx or whatever they please.

Apart from that, the Microsoft license only requires vendors to make Internet Explorer an integral part of the Windows 95 package. It does not prohibit them from including other browsers.

Your department is used to dealing with companies selling tangible goods — companies selling atoms. The companies that make cars, washing machines, light bulbs and roofing tiles all sell atoms. And despite all the software that is bundled with or embedded in computer hardware (computers, routers, switches or whatever), these vendors are still selling atoms as well.

But what is it that Microsoft sells? You might say "bits" (you have tried reading Negroponte's book *Being Digital,* haven't you?), but the truth is Microsoft and all other software vendors sell that most evanescent and intangible of products: procedures for manipulating symbols.

Before you accuse us of getting overly philosophical, realize it is important to draw such distinctions. You don't consider, for example, pharmaceuticals to be the same as cars from a commercial viewpoint: They have different roles in our culture's commercial activities. So we should accept that software is unlike other products and the definitions of anticompetitive practices in the automotive or pharmaceutical world aren't applicable to the software world.

When there's no added cost to the consumer, which is the case with Internet Explorer, and when, as we've pointed out, there's nothing to stop users from switching browsers if they wish, it makes your department's position look illogical.

Which leads to one question that keeps raising its head here at the Gibbs Institute: Whose advice are you taking?

Could it be you're paying too much attention to the anti-Microsoft lobby? You've got to realize that the computer marketplace in general and the software marketplace in particular are febrile, emotionally loaded environments in which immature competitive practices are commonplace.

Ms. Reno, get some advisors who can help you understand the issues from a nonpartisan viewpoint. If we at the Gibbs Institute can be of any assistance, please don't hesitate to drop us a line at nwcolumn@gibbs.com or call us at (800) 622-1108, Ext. 7504.

Yours sincerely,
Mark Gibbs

'Net Buzz

The latest on the Internet/intranet industry

By Chris Nerney

INKTOMI SERVES UP CACHE SERVER **Inktomi Corp.** usually is described in press reports as an Internet search engine vendor.

But the start-up responsible for the excellent **HotBot** search engine now is betting its immediate future on network caching software. The San Mateo, Calif.-based company's new product, Traffic Server 1.0, is designed to reduce Internet traffic by storing large amounts of data closer to users in a network.

Traffic Server is being pitched to Internet service providers, corporations and backbone providers.

Inktomi officials say caching is the best, most scalable approach to eliminating redundant traffic on the Internet, although the IP Multicast supporters undoubtedly have a different opinion.

Inktomi recently also cut deals with two of high tech's overlords — **Microsoft** and **Intel.** The Microsoft arrangement makes HotBot the search engine for the Microsoft Network site. The Intel alliance is even more significant — the chip maker is buying shares of Inktomi and will integrate the new network cache into its servers.

'AND THE BUFFET STUNK TOO!' It may have been an exclusive gathering, but last week's **Agenda** conference in Scottsdale, Ariz., featured the kind of testy exchanges that would be more appropriate at a frat party turned ugly.

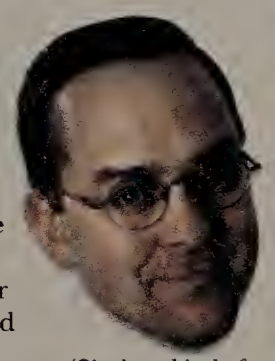
Agenda is a 10-year-old annual event that bills itself as an exclusive, invitation-only summit for the movers and shakers of high tech and finance.

In reality, says a 'Net Buzz operative who was there, there were as many "handlers" and wannabes among the crowd of 400 as there were heavyweights.

One heavyweight who came under fire was **Bill Gates,** whose stay in the desert was ruined by **Janet Reno** and that pesky **Department of Justice.** The Richest Man in the World was forced to fight off aggressive questions about the Justice Department's investigation into alleged **Microsoft** antitrust violations.

But the best exchange occurred between **Sun CEO Scott McNealy** and **Stewart Alsop,** the high-tech pundit and founder of Agenda. Apparently displeased with Alsop's line of argument during a "fireside chat," McNealy called his host "a prop for the PC industry." Some manners on that young man.

GETTING BACK TO HIS ROOTS On the surface, it looks like madness. Or worse, a midcareer crisis.


'Start-up *kind of guy' Daniell*

But former **AT&T Networked Commerce Services** executive **Jim Daniell** says his recent departure to become CEO of electronic commerce start-up **LitleNet LLC** is a return to form. Before launching a successful career at AT&T, Daniell was founder and vice president of **Bridge Builder Tech-nologies,** a Boxford, Mass.-based company responsible, he says, for the creation of the graphical user interface development environment. And while he enjoyed the corporate perks available to him as chief operating officer of an AT&T division with sales nearing $1 billion, Daniell says he missed the excitement of a small, growing company — the hopes, the dreams, the greasepaint, the bad coffee.

"I guess I'm a start-up kind of guy," he says.

Daniell's new company, founded in 1995 by **Thomas Litle** and based in Lowell, Mass., sells software for enabling business-to-business electronic commerce.

LIGHTENING YOUR TRAVEL LOAD You may be a star in the cyberuniverse, but when you hit the road for a trade show or some similar geek bacchanal, we bet you're stuck lugging around some clunky laptop just like the proles. Hell, you may as well staff the convention-floor booth, Mr. I-Get-Quoted-In-The-Trade-Pubs.

Now **Geofox, Inc.** says it can help put an end to your ignominy with a handheld computer that gives you access to your e-mail and the Internet.

The Austin, Texas-based start-up says its Geofox-One is as slim as a paperback book and features a 6.8-inch screen and 640 x 320 LCD resolution.

The product ships later this week and costs $499 for the basic model and $949 for the Professional model, which comes with a 33.6K bit/sec modem.

Ghosts, goblins, angels and devils, 'Net Buzz commands all of you to send us your best Internet- or intranet-related treats. If not, we will renew your vehicle's acquaintance with shaving cream. Contact Chris Nerney at (508) 820-7451 or cnerney@nww.com.

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